

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 12:32:53 ON 27 JAN 2004

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FILE COVERS 1907 - 27 Jan 2004 VOL 140 ISS 5
FILE LAST UPDATED: 26 Jan 2004 (20040126/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE L11

L3 4630 SEA FILE=HCAPLUS COMPOSITE# AND ORG? AND INORG?
L4 91 SEA FILE=HCAPLUS L3 AND SOFT?
L5 16 SEA FILE=HCAPLUS L4 AND HARD?
L6 2 SEA FILE=HCAPLUS L4 AND CURV?
L7 1 SEA FILE=HCAPLUS L4 AND MESH?
L8 24 SEA FILE=HCAPLUS L3 AND HIGH(3A)HARD?
L9 8 SEA FILE=HCAPLUS L8 AND PLASTIC?/SC,SX
L10 7 SEA FILE=HCAPLUS L5 AND PLASTIC?/SC,SX
L11 14 SEA FILE=HCAPLUS L6 OR L7 OR L9 OR L10

=> FILE WPIX

FILE 'WPIX' ENTERED AT 12:33:03 ON 27 JAN 2004

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FILE LAST UPDATED: 23 JAN 2004 <20040123/UP>
MOST RECENT DERWENT UPDATE: 200406 <200406/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> NEW WEEKLY SDI FREQUENCY AVAILABLE --> see NEWS <<<

>>> SLART (Simultaneous Left and Right Truncation) is now available in the /ABEX field. An additional search field /BIX is also provided which comprises both /BI and /ABEX <<<

>>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY <<<

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE, PLEASE VISIT:
http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
<http://thomsonderwent.com/coverage/latestupdates/> <<<

KATHLEEN FULLER EIC1700 272-2505

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER
GUIDES, PLEASE VISIT:
<http://thomsonderwent.com/support/userguides/> <<<

>>> ADDITIONAL POLYMER INDEXING CODES WILL BE IMPLEMENTED FROM
DERWENT UPDATE 200403.
THE TIME RANGE CODE WILL ALSO CHANGE FROM 018 TO 2004.
SDIS USING THE TIME RANGE CODE WILL NEED TO BE UPDATED.
FOR FURTHER DETAILS: <http://thomsonderwent.com/chem/polymers/> <<<

=> D QUE L17

L13 4672 SEA FILE=WPIX COMPOSITE# AND ORG? AND INORG?
L14 47 SEA FILE=WPIX L13 AND SOFT? AND HARD?
L15 3 SEA FILE=WPIX L14 AND CURV?
L16 10 SEA FILE=WPIX L14 AND C08K?/IC
L17 12 SEA FILE=WPIX L15 OR L16

=> FILE COMPENDEX

FILE 'COMPENDEX' ENTERED AT 12:33:17 ON 27 JAN 2004
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FILE LAST UPDATED: 27 JAN 2004 <20040127/UP>
FILE COVERS 1970 TO DATE.

<<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN
THE BASIC INDEX >>>

=> D QUE L18

L13 4672 SEA FILE=WPIX COMPOSITE# AND ORG? AND INORG?
L18 3 SEA FILE=COMPENDEX L13 AND SOFT? AND HARD?

=> FILE EMA

FILE 'EMA' ENTERED AT 12:33:30 ON 27 JAN 2004
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FILE LAST UPDATED: 13 JAN 2004 <20040113/UP>
FILE COVERS 1986 TO DATE.

=> D QUE L19

L13 4672 SEA FILE=WPIX COMPOSITE# AND ORG? AND INORG?
L19 6 SEA FILE=EMA L13 AND SOFT? AND HARD?

=> FILE RAPRA

FILE 'RAPRA' ENTERED AT 12:33:45 ON 27 JAN 2004
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FILE LAST UPDATED: 26 JAN 2004 <20040126/UP>
FILE COVERS 1972 TO DATE

>>> Simultaneous left and right truncation is available in the
basic index (/BI), and in the controlled term (/CT),
geographical term (/GT), and non-polymer term (/NPT) fields. <<<

KATHLEEN FULLER EIC1700 272-2505

>>> New search field /AB is available <<<

>>> The RAPRA Classification Code is available as a PDF file

>>> and may be downloaded free-of-charge from:

>>> http://www.stn-international.de/stndatabases/details/rapra_classcodes.pdf

=> D QUE L20

L13 4672 SEA FILE=WPIX COMPOSITE# AND ORG? AND INORG?

L20 1 SEA FILE=RAPRA L13 AND SOFT? AND HARD?

=> FILE JICST

FILE 'JICST-EPLUS' ENTERED AT 12:33:55 ON 27 JAN 2004

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FILE COVERS 1985 TO 26 JAN 2004 (20040126/ED)

THE JICST-EPLUS FILE HAS BEEN RELOADED TO REFLECT THE 1999 CONTROLLED TERM (/CT) THESAURUS RELOAD.

=> D QUE L21

L13 4672 SEA FILE=WPIX COMPOSITE# AND ORG? AND INORG?

L21 8 SEA FILE=JICST-EPLUS L13 AND SOFT? AND HARD?

=> FILE JAPIO

FILE 'JAPIO' ENTERED AT 12:34:07 ON 27 JAN 2004

COPYRIGHT (C) 2004 Japanese Patent Office (JPO)- JAPIO

FILE LAST UPDATED: 7 JAN 2004 <20040107/UP>

FILE COVERS APR 1973 TO SEPTEMBER 30, 2003

<<< GRAPHIC IMAGES AVAILABLE >>>

=> D QUE L22

L13 4672 SEA FILE=WPIX COMPOSITE# AND ORG? AND INORG?

L22 13 SEA FILE=JAPIO L13 AND SOFT? AND HARD?

=> DUP REM L11 L17 L18 L19 L20 L21 L22

FILE 'HCAPLUS' ENTERED AT 12:34:33 ON 27 JAN 2004

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FILE 'EMA' ENTERED AT 12:34:33 ON 27 JAN 2004

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FILE 'RAPRA' ENTERED AT 12:34:33 ON 27 JAN 2004

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FILE 'JAPIO' ENTERED AT 12:34:33 ON 27 JAN 2004
COPYRIGHT (C) 2004 Japanese Patent Office (JPO)- JAPIO
PROCESSING COMPLETED FOR L11
PROCESSING COMPLETED FOR L17
PROCESSING COMPLETED FOR L18
PROCESSING COMPLETED FOR L19
PROCESSING COMPLETED FOR L20
PROCESSING COMPLETED FOR L21
PROCESSING COMPLETED FOR L22
L24 49 DUP REM L11 L17 L18 L19 L20 L21 L22 (8 DUPLICATES REMOVED)

=> D L24 ALL 1-49

L24 ANSWER 1 OF 49 EMA COPYRIGHT 2004 CSA on STN
AN 2004(2):D2-D-144 EMA
TI Studies on reinforcing and toughening of nano-**composite** on
RPVC.
AU Quan, Y. (Tsinghua University (China)); Yang, M.; Yan, Q.; Jin, R.; Kan,
C.; Liu, D.
SO USA. 2003 Numerical Data, Photomicrographs, 17 ref.. p. 358-359
Conference: PMSE: Papers presented at the New York, New York Meeting, New
York, NY, USA, 7-11 Sep 2003
DT Conference Article; Journal
CY United States
LA English
AB Over the last 40 years, the attractive cost and price of
polyvinylchloride (PVC) have been a significant contributing factor to
the rapid development of PVC to manufacture pipe, outdoor furniture and
building materials. In general, the basic resin used to manufacture
outdoor construction is rigid PVC (RPVC) which is relatively brittle and
notch sensitive. In order to meet using requirements, RPVC must be
modified to improve its mechanical properties, in particular its
toughness, and some elastomers such as chlorinated polyethylene (CPE),
ethylene-vinyl acetate copolymer (EVA), nitrile-butadiene rubber (NBR)
etc have been used for this purpose. However, in these above
modifications, there are many negative effects on other properties of PVC
such as tensile, flexural properties and **hardness** etc. In order
to overcome these defects, some new toughening mechanisms and methods
have been developed by many authors. Recently, the results showed that
nano-scale particles are very useful in reinforcing and toughening some
plastics, which can not only increase the toughness of materials but also
can maintain the tensile strength, flexural strength and modulus, Vicat
softening temperature and **hardness** in higher level.
Though **composite** systems composed of **inorganic**
nano-particle and **organic** polymer are widely being studied and
is becoming the most applied potential system, the emulsion
polymerization of nano-CaCO₃ original particle core encapsulated by
acrylate copolymer shell has not been suggested and used as a modifier
for RPVC. In this paper, a **composite** particle with nano-CaCO₃
as a core and with polyacrylates as shell was synthesized by in situ
emulsion polymerization, and then the effect of reinforcing and
toughening of this kind of nano-**composite** on RPVC and the
synergistic effect of nano-**composite** with CPE were studied.
CC D Composites; D2 Materials Development; D-D2
CT Conference Paper; Journal Article; Nanocomposites; Calcium carbonate;

KATHLEEN FULLER EIC1700 272-2505

Polyacrylates; Core shell structure; Polyvinyl chlorides;
Hardness; Toughness; Emulsion polymerization; Impact strength;
Bend strength; Modulus of rupture in bending; Tensile strength
ET C*Ca*O; CaCO3; Ca cp; cp; C cp; O cp

L24 ANSWER 2 OF 49 EMA COPYRIGHT 2004 CSA on STN

AN 2003(11):C1-D-3436 EMA

TI Nylon 6 nanofiber reinforced BIS-GMA/TEGDMA dental restorative
composite resins.

AU Fong, H. (South Dakota School of Mines and Technology)

SO USA. 2003 Photomicrographs, Graphs, 10 ref.. p. 100-101

Conference: 226th ACS National Meeting, New York, USA, 7-11 Sep 2003

DT Conference Article; Journal

CY United States

LA English

AB **Composite** resins have been available to the dental profession for over four decades. Developed by Bowen over 40 years ago, this restorative agent, consisting of a tough, wear-resistant polymeric resin matrix and glass or ceramic fillers, presented opportunities never before equaled in modern dentistry, and was rapidly accepted by the profession. Investigations into reasons for failure revealed that, among other things, the filler particle was a major contributor. Ironically, the filler which had been added to the resin for the purpose of fortifying the material was actually responsible, at least in part, for its demise. During function, masticatory stresses were transmitted through the bolus of food and onto the surface of the particles projecting from the occlusal surface. Since the particles were considerably **harder** than the resin matrix in which they were embedded, much of the stress was transmitted through the particle and into the resin itself. Wherever the submerged portion of the particle was angulated or irregular in shape, the stress concentrations became excessively high. Such a condition tended to generate small cracks around the particle, thereby weakening the matrix locally. It was based on the above information that the reinforcing effects of Nylon 6 nanofibers, produced by electrospinning process, on the BIS-GMA/TEGDMA dental restorative resin matrix, were investigated. The embedded Nylon 6 nanofibers were much **softer** than **inorganic** fillers, and had more regular cylindrical shape. Meanwhile, the strong hydrogen bonding between the filler and the matrix, and the high specific surface area of Nylon 6 nanofiber, could result in a better interface that provided the **composite** resins with good mechanical properties.

CC D Composites; C1 Mechanical Properties; D-C1

CT Conference Paper; Journal Article; Dental materials; Nanocomposites;
Organic fiber reinforced plastics; Nylon 6; Polymethacrylates;
Coupling (molecular); Bend strength; Modulus of elasticity; Fracture strength

L24 ANSWER 3 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:783047 HCAPLUS

DN 139:280164

ED Entered STN: 07 Oct 2003

TI Hardenable **inorganic-organic composite**
composition containing hydraulic cement and polymerizable compound

IN Inoue, Akira; Masaki, Yuka

PA Asahi Fiber Glass Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

KATHLEEN FULLER EIC1700 272-2505

IC ICM C04B028-02
 ICS C04B024-26; C04B014-38; C04B103-60; C04B111-27; C04B111-28
 CC 58-3 (Cement, Concrete, and Related Building Materials)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003286059	A2	20031007	JP 2002-88999	20020327
PRAI	JP 2002-88999		20020327		

AB The composition contains hydraulic cement 100, acidic **organic** compound having polymerizable unsatd. bond 10-100, water 5-50 parts, and polymerization initiator 0.1-3 weight% (to acidic **organic** compound). The composition hardens at normal temperature in a short time. The composition is useful for binders or matrix for molded products, fiber-reinforced products, building materials and so on, and the **hardened** products have **high** fire resistance, water resistance, and mech. strength.

ST hardenable compn hydraulic cement polymerizable acidic compd; fire water resistance mech strength hydraulic cement polymer

IT Cement
 (aluminous; hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT Cement
 (fly ash; hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT Binders
 Fire-resistant materials
 Polymerization catalysts
 Water-resistant materials
 (hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT Glass fibers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT Cement
 (portland; hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT Polyesters, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (unsatd.; hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT 7727-21-1, Potassium persulfate 391197-78-7
 RL: CAT (Catalyst use); USES (Uses)
 (hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound, water, and polymerization initiator)

IT 108-05-4, Vinyl acetate, uses 7732-18-5, Water, uses 14472-55-0, Teracrylic acid 82427-01-8, 3-Methacryloyloxypropyl phosphate 109603-25-0, 2-(Methacryloyloxy)ethyl maleate 134846-68-7 607354-81-4
 RL: TEM (Technical or engineered material use); USES (Uses)
 (hardenable **inorg.-organic composite** composition containing hydraulic cement, polymerizable acidic **organic** compound,

KATHLEEN FULLER EIC1700 272-2505

water, and polymerization initiator)

L24 ANSWER 4 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-669943 [63] WPIX
CR 2003-874237 [81]
DNN N2003-534865 DNC C2003-182573
TI Forming polymer-based material used for filling of teeth and construction of appliances used for replacing teeth and other oral structures, involves using injection, measurable pressure and microwave energy.
DC A12 A14 A25 A26 A96 D21 D22 E19 P32
IN STANGEL, I; XU, J
PA (BIOM-N) BIOMAT SCI INC
CYC 1
PI US 2003069326 A1 20030410 (200363)* 10p A61F002-00
ADT US 2003069326 A1 Provisional US 1998-99654P 19980909, Div ex US 1999-391377 19990908, US 2002-74051 20020514
PRAI US 1998-99654P 19980909; US 1999-391377 19990908; US 2002-74051 20020514
IC ICM A61F002-00
ICS C08K003-00
AB US2003069326 A UPAB: 20031216
NOVELTY - Method for forming polymer-based material involves using injection, measurable pressure and microwave energy. Also claimed is the composition used for forming polymer-based material.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) use of method to form high accuracy shape **hardened** polymers and polymer-containing **composites**; and
(2) use of a hand-held microwave applicator to **harden** polymers and polymer-containing **composites** at the site of application (i.e., intra-oral, orthopedic).
USE - For forming polymer-based material used for denture base and **soft** denture and as **composite** resin (claimed). The polymer-based material is used in filling of teeth and construction of appliances used for replacing teeth and other oral structures. The polymer-based material is used in restoration of lost tooth tissue and in construction of removable dental appliances such as dentures, **soft** and **hard** relines. The polymer-based material is used in construction and forming of **composite** filling crowns, bridges, inlays, onlays, temporary prostheses, facings, veneers and orthodontic appliance.
ADVANTAGE - The polymer-based material with favorable property is produced.
Dwg.0/0
FS CPI GMPI
FA AB; GI; DCN
MC CPI: A11-B05D; A11-C02B; A12-V03C1; D08-A; E10-A04B; E10-B03A2; E10-B04D2; E31-P02B; E31-P03; E31-P05

L24 ANSWER 5 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN
AN 1030639577 JICST-EPlus
TI The factors controlling the adsorption behavior of cationic guest molecules on nano-layered **inorganic** compounds
AU AMANO TATSUYA
EGUCHI MIHARU
TACHIBANA HIROSHI
TAKAGI SHINSUKE
INOUE HARUO
SO Nippon Kagakkai Koen Yokoshu, (2003) vol. 83rd, no. 1, pp. 368. Journal

KATHLEEN FULLER EIC1700 272-2505

Code: S0493A (Fig. 2, Ref. 1)

ISSN: 0285-7626

CY Japan

DT Conference; Short Communication

LA Japanese

STA New

AB Clay minerals are layered **inorganic** compounds having negative charges and are known to accommodate various cationic molecules within their interlayers. Here, the factors controlling the adsorption behavior were studied through an observation of interactions of investigated cationic porphyrin with the surfaces of the clay. Effects of **hard**-type cations such as alkali metal ions and those of **soft**-type cations such as the pyridinium ion on the adsorption behavior have revealed that electrostatic and steric factors were mainly controlling the adsorption of the cation molecules. (author abst.)

CC CB12050B; YJ05000I; CE02000C (544.72-14-16; 667.2; 544.142/.144)

CT basic dye; clay mineral; layered compound; adsorption equilibrium; cation exchange; selectivity; electronic effect; steric effect; intercalation compound; counter ion effect; electric charge distribution; complex formation; ion exchanger (material); **composite** material; guest host effect; sodium chloride; optical absorption spectrum; ultraviolet absorption spectrum; visible absorption spectrum; sulfonium; tertiary amine; nitrogen heterocyclic compound; aromatic amine; polynuclear aromatic compound; sulfur heterocyclic compound

BT dyestuff; soil mineral; mineral (geology); soil component; component; compound (chemical); chemical equilibrium; equilibrium; ion exchange; exchange; exchange reaction; chemical reaction; property; effect; distribution; material; alkali metal halide; alkali metal compound; halide; halogen compound; chloride; chlorine compound; sodium compound; absorption spectrum; spectrum; ultraviolet spectrum; visible spectrum; sulfur compound; oxygen group element compound; onium compound; **organosulphur** compound; amine; heterocyclic compound; aromatic compound

L24 ANSWER 6 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:972080 HCAPLUS

DN 139:25176

ED Entered STN: 24 Dec 2002

TI Sol-gel derived hard optical coatings via **organic/inorganic composites**

AU Que, Wenxiu; Zhang, Q. Y.; Chan, Y. C.; Kam, C. H.

CS School of Electrical & Electronic Engineering, Photonics Research Group, Nanyang Technological University, Singapore, 639798, Singapore

SO Composites Science and Technology (2003), 63(3-4), 347-351

CODEN: CSTCEH; ISSN: 0266-3538

PB Elsevier Science Ltd.

DT Journal

LA English

CC 57-1 (Ceramics)

Section cross-reference(s): 38, 73

AB Hard optical coatings via TiO₂/**organically** modified silane **composites** have been prepared by the sol-gel technique using γ -Glycidioxypropyltrimethoxysilane (GLYMO, used as **organically** modified silane source) and tetrapropyl orthotitanate (TPOT, used as TiO₂ source) as precursors. SEM, atomic force microscopy, XPS, and Raman spectroscopy have been used to investigate the morphol. and structural properties of the coatings. The hardness and Young's modulus of the coatings have been characterized by a Nanoindenter and found to depend on the heat-treatment temperature and titanium content. **Hardness**

as **high** as 10 Gpa was achieved at a heat-treatment temperature of 1000°C. It is proposed that the **high hardness** of the coating is related to the carbon and titanium content in the coating.

- ST titania **organically** modified silane nanocomposite optical coating prepn property; hybrid **org inorg composite** optical coating prepn property
- IT Optical films
(TiO2/**organically** modified silane **composite**; sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)
- IT Ceramers
Hybrid **organic-inorganic** materials
Nanocomposites
(TiO2/**organically** modified silane, optical coatings; sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)
- IT Silica gel, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(**organically** modified, titania-containing, optical coatings; sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)
- IT Hardness (mechanical)
Young's modulus
(sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)
- IT 13463-67-7P, Titanium oxide (TiO2), preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(**composites** with **organically** modified silane, optical coatings; sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)
- IT 7631-86-9P, Silica, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(**organically** modified, **composites** with titania, coatings; sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)
- IT 2530-83-8, Silane, trimethoxy[3-(oxiranylmethoxy)propyl]- 3087-37-4, Tetrapropylorthotitanate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; sol-gel preparation and properties of TiO2/**organically** modified silane **composite** hard optical coatings)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bonnot, A; Phys Rev B 1990, V41(9), P6040 HCAPLUS
- (2) Brusatin, G; J Non-Crystal Solids 1997, V220, P202 HCAPLUS
- (3) Czerwinski, F; Thin Solid Films 1996, V289, P213 HCAPLUS
- (4) Innocenzi, P; Thin Solid Films 1966, V279, P23
- (5) Kobashi, K; Phys Rev B 1988, V38(6), P4067 HCAPLUS
- (6) Mizutani, R; J Mater Sci 1994, V29, P5773 HCAPLUS
- (7) Motakef, S; Opt Lett 1994, V19(15), P1125 HCAPLUS
- (8) Nikolic, L; Thin Solid Films 1997, V295, P101 HCAPLUS
- (9) Sakka, S; Chemistry, spectroscopy and application of sol-gel glass 1991, P89
- (10) Shroder, R; Phys Rev B 1990, V41(6), P3738 HCAPLUS
- (11) Sorek, Y; Chem Mater 1997, V9, P670 HCAPLUS
- (12) Taki, Y; Thin Solid Films 1998, V316, P45 HCAPLUS
- (13) Tulun, T; Ceramics International 1997, V23, P141 HCAPLUS

(14) Yoshikawa, M; Appl Phys Lett 1993, V62(24), P3114 HCAPLUS

L24 ANSWER 7 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN

AN 1030213390 JICST-EPlus

TI Synthesis and characteristic of Poly(imide-siloxane) crosslinkable on side chain

AU FURUKAWA NOBUYUKI

YUASA MASATOSHI; WADA YUKIHIRO

KIMURA YOSHIHARU

CS Nippon Steel Chemical Co., Ltd., JPN

Nippon Steel Chemical Co., Ltd., JPN

Kyoto Inst. Technol., Faculty of Textile Sci., JPN

SO Kobunshi Kako (Polymer Applications), (2003) vol. 52, no. 3, pp. 128-136.

Journal Code: F0391A (Fig. 11, Tbl. 4, Ref. 24)

CODEN: KOKABN; ISSN: 0023-2564

CY Japan

DT Journal; Commentary

LA Japanese

STA New

AB Poly(imide-siloxane) (A) is a heat-resistant block polyimide which consists of the poly(dimethyl-siloxane)chain of the **soft** segment and aromatic polyimide chain of the **hard** segment. This polymer is excellent in electrical characteristic, damp-proof characteristic, mechanical property, cementing property. By introduction amount and chain length of poly-siloxane chain which is a **soft** segment in the molecule, the followings change: Polymer phasing, surface characteristics of coating film, cohesion between polymer chain, **organic** solvent solubility, thermal decomposition temperature, glass transition point, chemical resistance, etc.. Recently, heat-resistance and chemical resistance over the convention are required, because the lead free solder of which the melting temperature is higher than ever is adopted in the electronic circuit card material using A. Then, the cross-linkable functional group in the siloxane chain was introduced, so that the heat-resistance and chemical resistance were drastically improved, while A maintained the conventional mechanical property. The following were shown: Synthetic method of A as functional group is vinyl group, the **hardening** reaction formula and characteristic. And, the following were explained: Conversion regime from vinyl group to other functional group, **hardening** reaction formula and characteristic, and application for molecular **composites** with thermosetting resin, photopolymer.

CC CF08030C; YH07150C; CG04030D (547.1'128; 678.5/.8; 542.952.6CO)

CT polyimide; siloxanes; segmented polymer; polysiloxane; chain length effect; microphase separation; mechanical property; heat resistance; chemical durability; vinyl group; crosslinking; molecular **composites**; side chain; adhesion property; moisture resistancy; printed board; hydrosilylation; electrical property; polydimethylsiloxane; aromatic polyimide; block copolymer; polymer chain; group(radical)

BT polymer; silicon compound; carbon group element compound; oxygen compound; oxygen group element compound; multibloc copolymer; copolymer; **inorganic** polymer; effect; phase separation; separation; micro structure; structure; property; resistance(endure); alkenyl group; polymer reaction; chemical reaction; **composite** material; material; moisture characteristic; characteristic; substrate(plate); plate classified by application; plate(material); electric apparatus and parts; parts; addition reaction; molecular chain

ST functional group; chemical resistance

L24 ANSWER 8 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

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AN 2002-463149 [49] WPIX
CR 2002-425907 [45]; 2002-443974 [47]; 2002-499819 [53]; 2002-500841 [53];
2002-527351 [56]; 2002-536564 [57]; 2002-546697 [58]; 2002-546698 [58]
DNN N2002-365184 DNC C2002-131580
TI Preparation of aqueous nanocomposite dispersion used in coatings,
sealants, involves polymerizing modified aqueous clay dispersion
comprising ethylenically unsaturated monomer and exchangeable cations.
DC A18 A60 G02 G03 G08 T04
IN LORAH, D P; SLONE, R V
PA (ROHM) ROHM & HAAS CO; (LORA-I) LORAH D P; (SLON-I) SLONE R V
CYC 98
PI WO 2002024759 A2 20020328 (200249)* EN 56p C08F002-44
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO
RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
US 2002058740 A1 20020516 (200249) C08K003-34 <--
AU 2001089118 A 20020402 (200252) C08F002-44
EP 1328554 A2 20030723 (200350) EN C08F002-44
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI TR
BR 2001013998 A 20030812 (200367) C08F002-44
ADT WO 2002024759 A2 WO 2001-US28992 20010917; US 2002058740 A1 Provisional US
2000-234263P 20000921, Provisional US 2000-257041P 20001221, US
2001-954135 20010917; AU 2001089118 A AU 2001-89118 20010917; EP 1328554
A2 EP 2001-968914 20010917, WO 2001-US28992 20010917; BR 2001013998 A BR
2001-13998 20010917, WO 2001-US28992 20010917
FDT AU 2001089118 A Based on WO 2002024759; EP 1328554 A2 Based on WO
2002024759; BR 2001013998 A Based on WO 2002024759
PRAI US 2000-257041P 20001221; US 2000-234263P 20000921; US 2001-954135
20010917
IC ICM C08F002-44; C08K003-34
ICS C08K003-00; C08K009-04
AB WO 200224759 A UPAB: 20031017
NOVELTY - Ethylenically unsaturated monomer (EUM) (I) and aqueous clay
dispersion comprising at least partially exfoliated clay containing
exchangeable cation (I) and optionally EUM (II), are combined. Cation (II)
which exchanges with cation (I) to form modified aqueous clay dispersion
is added, and portion of monomer is polymerized to form aqueous
nanocomposite dispersion. At least one of monomer comprises polar monomer.
DETAILED DESCRIPTION - Ethylenically unsaturated monomer(s) (I), and
aqueous clay dispersion comprising an at least partially exfoliated clay
containing exchangeable cation (I) and optionally ethylenically
unsaturated monomer(s) (II), are combined. A cation (II) which exchanges
with at least a portion of cation (I) to form a modified aqueous clay
dispersion is added. At least a portion of monomer is polymerized to form
aqueous nanocomposite dispersion. At least one of the ethylenically
unsaturated monomer comprises a polar monomer.
USE - In coating, adhesive, caulking, sealant, thermoplastic resin
and textiles. The coating composition are used as architectural coatings
particularly low volatile content application for semigloss and gloss;
factory applied coatings (metal and wood, thermoplastic and
thermosetting); maintenance coatings (overmetal) automotives coatings;
concrete roof file coatings; elastomeric roof coatings; elastomeric wall
coatings; external insulating finishing system; paper or paper board
coating; overprint varnishes; fabric coatings and backcoatings; leather
coatings; and cementitious roof tile coatings. The dispersion is also

useful in opaque polymer and hollow sphere pigments; polish; binders (for nonwovens, paper coatings, pigment printing or inkjet); adhesive (pressure sensitive, flocking adhesives, laminating adhesive, packaging adhesive, hot melted adhesive, reactive adhesive, flexible or rigid industrial adhesive or other water basic adhesives); plastic additives; ion exchange resin; hair fixatives; traffic paint; ink composition used for flexographic ink, gravure ink, ink jet ink and pigment printing paste for application on film, sheet, reinforcement plastic **composite**, paper board, metal foil, fabric, metal, glass and wood; and digital imaging composition used for electrophotography.

ADVANTAGE - The method does not utilize additional polymers or solvent to enhance the affinity between clay and polymer at interface and improve overall mechanical property of nanocomposite. The enhanced affinity results in increased physical properties such as physical strength. The coating composition containing nanocomposite dispersion exhibits improved block, print and dirt pickup resistance, enhanced barrier properties and enhanced flame retardance, toughness and strength. The coating composition can utilize **soft** binders without need for solvent for film formation and still maintains sufficient **hardness**, toughness and lower tack in dried film. The high acid polymer composition with nanocomposite dispersion has increased **hardness**. The nanocomposite dispersion imparts high block resistance when used in paint composition, enhanced heat sealed resistance and toughness in ink binder composition. The nanocomposite dispersion has resistance to weathering and is inexpensive.

DESCRIPTION OF DRAWING(S) - The figure shows the graphical representation of tensile strength elongation of aqueous nanocomposite composition.

Dwg.1/2

FS CPI EPI

FA AB; GI

MC CPI: A08-R01; A10-B01; A12-A05; A12-B01; A12-R08; G02-A02; G03-B02C;
G04-B02
EPI: T04-G02C

L24 ANSWER 9 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2002-371503 [40] WPIX

DNN N2002-290335 DNC C2002-105079

TI Cellulose reinforced **composite** with good mechanical properties, comprises a thermoplastic matrix, a cellulosic reinforcement phase and a coupling agent.

DC A81 E19 P63

IN BATEMAN, S; PARTLETT, M; WU, D Y

PA (CSIR) COMMONWEALTH SCI & IND RES ORG; (BATE-I) BATEMAN S; (PART-I) PARTLETT M; (WUDY-I) WU D Y

CYC 97

PI WO 2002010272 A1 20020207 (200240)* EN 23p C08K011-00 <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU
SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001077391 A 20020213 (200240) C08K011-00 <--
EP 1305363 A1 20030502 (200331) EN C08K011-00 <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI TR
US 2003176538 A1 20030918 (200362) C08L001-00
BR 2001012940 A 20030708 (200364) C08K011-00 <--

KATHLEEN FULLER EIC1700 272-2505

ADT WO 2002010272 A1 WO 2001-AU936 20010731; AU 2001077391 A AU 2001-77391 20010731; EP 1305363 A1 EP 2001-955124 20010731, WO 2001-AU936 20010731; US 2003176538 A1 CIP of WO 2001-AU936 20010731, US 2003-355252 20030131; BR 2001012940 A BR 2001-12940 20010731, WO 2001-AU936 20010731

FDT AU 2001077391 A Based on WO 2002010272; EP 1305363 A1 Based on WO 2002010272; BR 2001012940 A Based on WO 2002010272

PRAI AU 2000-9098 20000731

IC ICM C08K011-00; C08L001-00
ICS B27N003-04

AB WO 200210272 A UPAB: 20020626
NOVELTY - A **composite** comprising a thermoplastic matrix, a cellulosic reinforcement phase and a coupling agent for improving the interaction between the thermoplastic matrix and cellulosic phase where the coupling agent is selected from compounds comprising one or more reactive nitrogen groups.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) a **composite** comprising:
(a) 40 - 80 weight% thermoplastic matrix;
(b) 20 - 60 weight% a cellulosic phase; and
(c) 0.25 - 20 weight% coupling agent selected from compounds comprising mono- or multifunctional reactive nitrogen groups; and
(2) a process for preparing a **composite**, comprising mixing, heating and forming the composition to produce a mixture of a continuous phase comprising a thermoplastic and a discontinuous phase of cellulosic reinforcement in the presence of a coupling agent, optionally in the presence of one or more of a radical initiator and other suitable additives.
USE - The cellulose reinforced **composite** is useful for building and construction materials, highway construction products, packaging products, automotive components, agricultural products, and leisure products.
ADVANTAGE - The cellulose reinforced **composite** composition uses relatively low cost cellulosic components and thermoplastics, and has good mechanical properties.
Dwg.0/0

FS CPI GMPI
FA AB; DCN
MC CPI: A08-M01; A08-R07; E06-H; E07-D01; E07-D13C; E07-E01; E07-H; E10-A10B; E10-B01E

L24 ANSWER 10 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-266302 [26] WPIX
DNN N2003-211509 DNC C2003-069563
TI Formation of structural component for **composite** structure, e.g., boat or tank, involves inserting first foam core within cavity and inserting second foam core having higher rigidity than first foam core.

DC A25 A32 A92 A95 Q24
IN LEWIT, S M
PA (LEWI-I) LEWIT S M; (COMP-N) COMPSYS INC
CYC 1
PI US 2002178992 A1 20021205 (200326)* 8p B63B005-24
US 6497190 B1 20021224 (200326) B63B005-24

ADT US 2002178992 A1 US 2001-867203 20010529; US 6497190 B1 US 2001-867203 20010529

PRAI US 2001-867203 20010529

IC ICM B63B005-24
ICS B29C031-00

AB US2002178992 A UPAB: 20030428
NOVELTY - Forming a structural component comprises providing a cavity

formed at least in part from a fabric layer (12-15); inserting at least a first foam core (16) within the cavity; and inserting at least a second foam core (18) within the cavity. The second foam core has a relatively higher rigidity than the first foam core. It penetrates the fabric layer.

USE - The invention is for forming a structural component or a conformable **composite** reinforcing component for forming a **composite** structure requiring a tight **curvature** by conforming the structural component to the tight **curvature** of the **composite** structure and then **hardening** the structural component. The **composite** structure is a boat hull or a tank. (All claimed)

ADVANTAGE - The structural component of the invention provides strength and rigidity but remains malleable prior to lamination to allow for tight **curvatures**.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of a structural component of the invention.

Interstices 11

Fabric layer 12-15

First foam core 16

Second foam core 18

Dwg. 2/8

FS CPI GMPI

FA AB; GI

MC CPI: A11-B; A11-B06A; A12-S02

L24 ANSWER 11 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-524510 [50] WPIX

DNN N2003-416089 DNC C2003-141529

TI Temperature-independent, bullet-proof, laminated safety panel, e.g. for vehicles, comprises several supports and several energy-dissipating plastic layers with maximum dissipation at different temperatures.

DC A14 A17 A28 A93 A95 E19 E37 L01 P73 Q79

IN BASTIAN, V; SCHWAMB, M; TOMALA, A

PA (BAST-I) BASTIAN V; (CHEM-N) CHEMETALL GMBH; (TOMA-I) TOMALA A

CYC 1

PI DE 10055830 A1 20020529 (200350)* 22p F41H005-04

ADT DE 10055830 A1 DE 2000-10055830 20001111

PRAI DE 2000-10055830 20001111

IC ICM F41H005-04

ICS B32B017-10; C03C027-12

AB DE 10055830 A UPAB: 20030805

NOVELTY - Penetration-resistant, bullet-proof and/or sound-insulating laminated safety panel comprises 1-10 or more supports and 2-10 or more energy-dissipating plastic layers of the same or different composition which produce their maximum energy-dissipating effect at different temperatures, so that the laminate shows the above properties over a range of at least 40 deg. C.

DETAILED DESCRIPTION - Laminated safety material with penetration-resistant, bullet-proof and/or sound-insulating properties as described in DIN 52290 Part 3 (06/1984), DIN EN 1063 (07/1993), DIN 52290 Part 2 (11/1988), DIN 52290 Part 5 (12/1987), DIN EN ISO 717-1 and 717-2 (01/1997) and/or DIN 52210 (08/1984). This laminate comprises 1-10 or more supports (1) of the same or different composition and 2-10 or more functional energy-consuming and energy-dissipating plastic layers (2) of the same or different composition, with each layer (2) and/or support (1) producing its maximum energy consuming/dissipating effect at a different temperature (or temperature range) so that the laminate shows the above properties over a wide temperature range of at least 40 deg. C.

USE - As penetration-proof, bullet-proof, explosion-proof,

sound-proof and/or UV-proof sheets for civil or military applications in land vehicles, aircraft, ships and buildings (claimed).

ADVANTAGE - The lightweight **composite** safety material costs relatively little to produce, can be used for low-cost structural glazing (optionally not power-driven) and is suitable for a wide range of applications. Transparent versions of this material show excellent light transmission properties, with no interference patterns and excellent color neutrality.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-section of the safety panel.

supporting layers 1

layers of plastic showing maximum energy-dissipating effects at different temperatures 2

Dwg.6/10

FS CPI GMPI

FA AB; GI; DCN

MC CPI: A12-R04; A12-T04A; E05-B01; E05-F; E05-G02; E05-L; E05-M; E10-A04B1C; E10-A15A; E10-B03B2; E10-B04A2; E10-B04D2; E10-C04L1; E34-B03; E34-D02; E35; L01-H05A; L01-L01; L01-L02

L24 ANSWER 12 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2001-574644 [65] WPIX

DNC C2001-171104

TI Waste glass blended artificial stone used as high **hardness soft composite**, has preset amount of waste glass component containing preset grain sized waste glass powder, fine granule and grain, and resin component.

DC A14 A93 L01 L02

PA (DOPE-N) DOPERU KK

CYC 1

PI JP 2001181002 A 20010703 (200165)* 9p C04B026-02

ADT JP 2001181002 A JP 1999-368147 19991224

PRAI JP 1999-368147 19991224

IC ICM C04B026-02

ICS C04B018-16; C08K003-40; C08L101-00

ICI C04B111:54

AB JP2001181002 A UPAB: 20011108

NOVELTY - A waste glass blended artificial stone comprises 60-95 weight% (weight%) of waste glass component and 5-40 weight% of resin component. The waste glass component is a blend of 85 weight% or less of waste glass powder having grain size of 2-36 mesh, 10 weight% or less of waste glass fine granule having grain size of 36-72 mesh, and 50 weight% or less of waste glass grain having grain size of less than 72 mesh.

USE - As high **hardness soft composite** having rigid surface (claimed).

ADVANTAGE - The recycle of glass is improved. The waste glass blended artificial stone has favorable depth and glossy peculiar color tone. The artificial stone can also be bending processed without destruction. The artificial stone is equipped with functions such as light emitting function or nonflammable. The artificial stone is highly strong and has high **hardness**.

Dwg.0/1

FS CPI

FA AB

MC CPI: A12-D; A12-R01; L02-D09

L24 ANSWER 13 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2001-292664 [31] WPIX

DNN N2001-209214 DNC C2001-089829

KATHLEEN FULLER EIC1700 272-2505

TI Non-asbestos friction material used for manufacture of, e.g., automotive disc pads, comprises fibrous base, binder, filler and rubber **composite**.

DC A88 L02 Q63

IN YAMANE, T

PA (BBAF-N) BBA FRICTION GMBH; (NISN) NISSHINBO IND INC

CYC 28

PI EP 1081406 A2 20010307 (200131)* EN 10p F16D069-02

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

JP 2001107025 A 20010417 (200138) 10p C09K003-14

KR 2001049947 A 20010615 (200171) F16D069-02

US 6451872 B1 20020917 (200264) C08J005-14

ADT EP 1081406 A2 EP 2000-306460 20000728; JP 2001107025 A JP 2000-223321
20000725; KR 2001049947 A KR 2000-44221 20000731; US 6451872 B1 US
2000-628551 20000728

PRAI JP 1999-216258 19990730

IC ICM C08J005-14; C09K003-14; F16D069-02

ICS **C08K007-02**; C08L021-00

AB EP 1081406 A UPAB: 20021031

NOVELTY - The material comprises a molded and cured composition that includes: (A) a fibrous base; (B) a binder; (C) a filler; and (D) particles of a rubber **composite** that consists primarily of at least one **hard** or **soft** fibrous substance having a Mohs **hardness** below 4 and rubber, and, optionally, at least one type of **hard** particle having a Mohs **hardness** of at least 4.

DETAILED DESCRIPTION - The fibrous base (A) may be any **inorganic** or **organic** fiber commonly used in friction material, other than asbestos.

The binder (B) may be a known binder commonly used in friction materials, e.g. phenolic resins, melamine resins, etc..

The filler (C) may be any **inorganic** or **organic** material used in ordinary friction materials, e.g. molybdenum disulfide, magnesium oxide, etc..

The rubber **composite** particles (D) may contain a crosslinking agent and have an average particle size of 50-10,000 microns

Preferably, the rubber **composite** particles are porous and have bulk density after mixing and size reduction of at most one-half the theoretical density.

Production of the **composite** particles involves mixing the fibrous substance, e.g. ceramic, natural mineral, glass, metal, aramid, carbon, etc., fibers, the rubber, e.g. acrylonitrile-butadiene rubber, and, optionally, the **hard** particles, e.g., ceramic, metal oxide, or nitride particles, at 20-200 deg. C under a pressure of 1-100 kg/cm² for 1-30 minutes, then releasing the pressure to 20 kg/cm² or less, and milling and mixing.

An INDEPENDENT CLAIM is given for a non-asbestos friction material based on that described above, but where the rubber **composite** additionally includes at least one type of **hard** particle having a Mohs **hardness** of at least 4.

USE - For braking in automobiles, large trucks, railroad cars and various types of industrial equipment.

ADVANTAGE - Counter surface attack and the amount of wear due to segregation of **hard** particles and **hard** fibrous substance within the friction material are reduced. Noise performance is improved. Reduction in the friction coefficient at high temperatures is reliably prevented. Tearing and loss of rubber during brake operation are minimized.

Dwg.0/0
FS CPI GMPI
FA AB
MC CPI: A12-H10; L02-F

L24 ANSWER 14 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
AN 2001:100682 HCAPLUS
DN 134:296578
ED Entered STN: 09 Feb 2001
TI Toughening of a high-temperature polymer by the sol-gel, in situ
generation of a rubbery silica-siloxane phase
AU Zhou, Wen; Mark, James E.; Unroe, Marilyn R.; Arnold, Fred E.
CS Department of Chemistry and Polymer Research Center, The University of
Cincinnati, Cincinnati, OH, 45221-0172, USA
SO Journal of Applied Polymer Science (2001), 79(13), 2326-2330
CODEN: JAPNAB; ISSN: 0021-8995
PB John Wiley & Sons, Inc.
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 39
AB A Ph ether Ph phosphate polymer, specifically poly(biphenyl ether tri-Ph
phosphate), was modified to increase its tractability and to improve its
toughness. The first goal was achieved by increasing its solubility by
sulfonation of the chain, and the second, by the in situ generation of a
rubbery phase. This phase was generated by a modification of the usual
sol-gel reaction (which usually generates a **hard** silica-like
material by the hydrolysis of a tetrafunctional **organosilicate**).
In this case, a difunctional silicate was included, thus introducing some
softening organic groups into the dispersed phase. A
bonding agent, N,N-diethylaminopropyltrimethoxysilane, was also included
to improve the bonding between the two phases in this **organic-**
inorg. composite. As expected, the glass transition
temps. generally increased slightly upon sulfonation, but decreased
significantly upon introduction of the rubbery phase. Most important, the
toughness of the polymer was successfully increased with, for example,
only 8 wt% of the rubbery phase, quadrupling extensibility to 20 % and
markedly increasing the toughness.
ST polybiphenyl ether triphenyl phosphate toughening sulfonation sol gel
process; silica siloxane polybiphenyl ether triphenyl phosphate toughening
IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(aromatic, sulfonated, silicone rubber blend; toughening of high-temperature
polymer by sol-gel, in situ generation of rubbery silica-siloxane
phase)
IT Silicone rubber, preparation
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)
(poly(biphenyl ether tri-Ph phosphate) blend; toughening of high-temperature
polymer by sol-gel, in situ generation of rubbery silica-siloxane
phase)
IT Glass transition temperature
Mechanical properties
Sol-gel processing
Stress-strain relationship
Sulfonation
Toughness
(toughening of high-temperature polymer by sol-gel, in situ generation of
rubbery silica-siloxane phase)

IT 334519-34-5P

RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(rubber, poly(biphenyl ether tri-Ph phosphate) blend; toughening of high-temperature polymer by sol-gel, in situ generation of rubbery silica-siloxane phase)

IT 108809-07-ODP, sulfonated

RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(silicone rubber blend; toughening of high-temperature polymer by sol-gel,

in

situ generation of rubbery silica-siloxane phase)

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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- (2) American Chemical Society; Rubber-Toughened Plastics 1989, V222
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L24 ANSWER 15 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:326809 HCAPLUS

DN 135:93526

ED Entered STN: 08 May 2001

TI Self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites

AU Lu, Yunfeng; Yang, Yi; Sellinger, Alan; Lu, Mengcheng; Huang, Jinman; Fan, Hongyou; Haddad, Raid; Lopez, Gabriel; Burns, Alan R.; Sasaki, Darryl Y.; Shelnutt, John; Brinker, C. Jeffrey

CS Department of Chemical and Nuclear Engineering, The University of New Mexico Center for Micro-Engineered Materials, Albuquerque, NM, 87131, USA

SO Nature (London, United Kingdom) (2001), 410(6831), 913-917

CODEN: NATUAS; ISSN: 0028-0836

PB Nature Publishing Group

DT Journal

LA English

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37, 46

AB Nature abounds with intricate **composite** architectures composed of **hard** and **soft** materials synergistically intertwined to provide both useful functionality and mech. integrity. Recent synthetic efforts to mimic such natural designs have focused on nanocomposites, prepared mainly by slow procedures like monomer or polymer

infiltration of **inorg.** nanostructures or sequential deposition. Here we report the self-assembly of conjugated polymer/silica nanocomposite films with hexagonal, cubic or lamellar mesoscopic order using polymerizable amphiphilic diacetylene mols. as both structure-directing agents and monomers. The self-assembly procedure is rapid and incorporates the **organic** monomers uniformly within a highly ordered, **inorg.** environment. Polymerization results in polydiacetylene/silica nanocomposites that are optically transparent and mech. robust. Compared to ordered diacetylene-containing films prepared as Langmuir monolayers or by Langmuir-Blodgett deposition, the nanostructured **inorg.** host alters the diacetylene polymerization behavior, and the resulting nanocomposite exhibits unusual chromatic changes in response to thermal, mech. and chemical stimuli. The **inorg.** framework serves to protect, stabilize, and orient the polymer, and to mediate its function. The nanocomposite architecture also provides sufficient mech. integrity to enable integration into devices and microsystems.

ST self assembly chromatic polydiacetylene silica nanocomposite

IT Surfactants

(polydiacetylenes; self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites)

IT Dielectric constant

Langmuir monolayers

Nanocomposites

Polymer morphology

Self-assembly

(self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites)

IT Polydiacetylenes

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites)

IT 7631-86-9P, Silica, uses 348144-10-5P 348144-12-7P 348144-14-9P 348144-16-1P 348144-18-3P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites)

IT 66990-32-7, 10,12-Pentacosadiynoic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites)

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L24 ANSWER 16 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:244596 HCAPLUS

DN 135:46821

ED Entered STN: 06 Apr 2001

TI Force modulation atomic force microscopy as a powerful tool in
organic-inorganic hybrid materials analysis

AU Schiavon, Giovanni; Kuchler, Josef G.; Corain, Benedetto; Hiller, Wolfgang
CS Lehrstuhl fur Anorganische und Analytische Chemie Technische Universitat
Munchen, Garching, D-85747, Germany

SO Advanced Materials (Weinheim, Germany) (2001), 13(5), 310-313
CODEN: ADVMEW; ISSN: 0935-9648

PB Wiley-VCH Verlag GmbH

DT Journal

LA English

CC 37-3 (**Plastics** Manufacture and Processing)

Section cross-reference(s): 57

AB To obtain information about the evolution of the reaction mixture and
therefore the generation of the final hybrid system, films from solns.
with different tetra-Et orthosilicate (TEOS)/PMMA ratios were prepared by
dip-coating deposition using both hydrochloric acid and dibutyltin
dilaurate (DBTL) catalysis and then analyzed by AFM force modulation. The
quality of the films produced was evaluated by IR anal. and particular
attention was paid to understanding the role of the catalysis on the
formation of H-bonds between PMMA and silica. Little information is
available on the role of the catalyst that is mainly used for natural
stone conservation, i.e., DBTL. All the samples are transparent and
visually homogeneous except those, which are produced by acid catalysis
and from solns. with higher TEOS content. Some samples appear as white
opaque films and their topog. on AFM anal. reveals the presence of
micrometer size features due to phase separation. Finally, force modulation
anal. allows us to observe how the two phases sep., by creating a map of
the relative **hardness** on the surface of the resulting films.

For the **composites** prepared, the **softer** domains are
interpreted as PMMA areas. From the force modulation images, it can be
said that for the DBTL catalysis and for samples obtained with low

concentration

of silica for acid catalysis, the system follows a spinodal-like phase
separation, with **mesh** sizes between 60 and 100 nm.

ST methyl methacrylate tetraethyl orthosilicate ceramer structure; force
modulation atomic force microscopy ceramer structure; catalyst ceramer
prepn hybrid structure; hydrochloric acid catalyst prepn ceramer

structure; dibutyltin dilaurate catalyst prepn ceramer structure
IT Ceramers
Hydrogen bond
Polymerization catalysts
(force modulation atomic force microscopy in structure determination of Me methacrylate-tetraethyl orthosilicate hybrid materials prepared in presence of dibutyltin dilaurate or HCl catalysts)
IT Polymer morphology
(surface; force modulation atomic force microscopy in structure determination of Me methacrylate-tetraethyl orthosilicate hybrid materials prepared in presence of dibutyltin dilaurate or HCl catalysts)
IT 77-58-7 7647-01-0, Hydrochloric acid, uses
RL: CAT (Catalyst use); USES (Uses)
(force modulation atomic force microscopy in structure determination of Me methacrylate-tetraethyl orthosilicate hybrid materials prepared in presence of dibutyltin dilaurate or HCl catalysts)
IT 288319-40-4P, Methyl methacrylate-tetraethyl orthosilicate copolymer
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(force modulation atomic force microscopy in structure determination of Me methacrylate-tetraethyl orthosilicate hybrid materials prepared in presence of dibutyltin dilaurate or HCl catalysts)
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(11) Reich, S; J Polym Sci, Polym Phys Ed 1981, V19, P1225
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L24 ANSWER 17 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
AN 2000:278054 HCAPLUS
DN 132:294602
ED Entered STN: 28 Apr 2000
TI **High-hardness soft composite material**
IN Sakai, Mieko; Saito, Kenichiro
PA Doppel Co., Ltd., Japan
SO PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM C08L101-00
ICS C08L033-00; C08K003-00; C08K005-00
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 38

applicant's

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000023524	A1	20000427	WO 1999-JP5843	19991022
	W: CA, CN, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 2000129134	A2	20000509	JP 1998-300576	19981022
	EP 1174471	A1	20020123	EP 1999-949370	19991022
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
PRAI	JP 1998-300576	A	19981022		
	WO 1999-JP5843	W	19991022		
AB	The composite material useful for artificial marble consists of an organic/inorg. composite material having $\geq 60\%$ of inorg. components including an aggregate component, and which has a surface Vickers hardness (JIS Z 2244) of ≥ 400 and a radius of curvature , at which the material is bendable without being broken, of at least R25 mm based on a platy body 3-15 mm thick, the organic/inorg. composite material being high in surface hardness , soft and bendably worked.				
ST	inorg aggregate org composite hardness ; artificial marble methacrylic resin				
IT	Molded plastics, properties RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (high-hardness soft inorg.-organic composite materials for artificial marble)				
IT	Marble, artificial RL: TEM (Technical or engineered material use); USES (Uses) (high-hardness soft inorg.-organic composite materials for artificial marble)				
IT	21645-51-2, Aluminum hydroxide, uses RL: MOA (Modifier or additive use); USES (Uses) (high-hardness soft inorg.-organic composite materials for artificial marble)				
IT	9011-14-7, PMMA 25265-15-0, 2-Ethylhexyl acrylate-methyl methacrylate copolymer 26519-58-4, 2-Ethylhexyl methacrylate-methyl methacrylate copolymer 27517-36-8, Cyclohexyl methacrylate-methyl methacrylate copolymer 264611-30-5, 2-Ethylhexyl acrylate-2-ethylhexyl methacrylate-methyl methacrylate copolymer RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (high-hardness soft inorg.-organic composite materials for artificial marble)				
IT	7631-86-9, Silica, uses RL: MOA (Modifier or additive use); USES (Uses) (natural, aggregates; high-hardness soft inorg.-organic composite materials for artificial marble)				

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Anon; JP 07501098 A
- (3) Anon; US 4221697 A HCAPLUS
- (4) Anon; US 4251576 A HCAPLUS
- (5) Anon; US 5519081 A HCAPLUS
- (6) Anon; US 5519083 A HCAPLUS

KATHLEEN FULLER EIC1700 272-2505

- (7) Anon; US 5530064 A HCAPLUS
- (8) Anon; US 5578673 A HCAPLUS
- (9) Imperial Chem Ind Plc; WO 9310183 A1 1993 HCAPLUS
- (10) Imperial Chemical Ind Ltd; JP 6084364 A 1985
- (11) Kyowa Gas Chemical Ind Co Ltd; JP 60245661 A 1985 HCAPLUS
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L24 ANSWER 18 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-632244 [61] WPIX

DNC C2000-190738

TI Manufacture of **organic-inorganic** gradient **composite** material for adhesive, involves contacting **organic** polymer or moist gel with metal oxide, metal alkoxide or partially hydrolyzed and polycondensate metal alkoxide.

DC A28 G02 G03

PA (ORIE-N) ORIENT KAGAKU KOGYO KK; (OSAQ) OSAKA CITY

CYC 1

PI JP 2000248065 A 20000912 (200061)* 12p C08G077-00

ADT JP 2000248065 A JP 1999-50338 19990226

PRAI JP 1999-50338 19990226

IC ICM C08G077-00

ICS C08G079-00; C08K003-22; C08L101-00

AB JP2000248065 A UPAB: 20001128

NOVELTY - An **organic** polymer dissolved in a solvent, or a moist gel formed by sol gel method from an **organic** polymer containing metal alkoxide is made to contact metal oxide, metal alkoxide or partially hydrolyzed and polycondensate metal alkoxide. The **organic-inorganic composite** material formed has a structure in which the concentration of **organic** polymer and/or metal oxide varies continuously.

USE - For plastic material, adhesive, structural material, optical material, resin additive, surface improvement agent, **hard-coat** agent, electrical-electronic material, medical material, filler, sealing agent, polymeric material and as binder for coating material.

ADVANTAGE - The **organic-inorganic composite** material has high performance, thermal shock resistance, chemical resistance and mechanical strength. The **composite** material is **soft**, light weight and has excellent workability.

Dwg.0/2

FS CPI

FA AB

MC CPI: A12-A05; A12-B01W; G02-A02B2; G03-B02E; G03-B04

L24 ANSWER 19 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:112170 HCAPLUS

DN 132:254655

ED Entered STN: 17 Feb 2000

TI Polydimethylsiloxane-based ORMOSIL microstructure: correlation with compressive behavior

AU Foussaier, O.; Menetrier, M.; Videau, J.-J.; Duguet, E.

CS Institut de Chimie de la Matiere Condensee de Bordeaux (UPR 9048 CNRS), Pessac, F-33608, Fr.

SO Materials Letters (2000), 42(5), 305-310

CODEN: MLETDJ; ISSN: 0167-577X

PB Elsevier Science B.V.

DT Journal

LA English

CC 57-1 (Ceramics)

Section cross-reference(s): 38

KATHLEEN FULLER EIC1700 272-2505

- AB Monolithic crack-free hybrid glasses (**OR**ganically **MO**dified **SIL**icates or **ORMOSIL**s) have been synthesized by hydrolysis and polycondensation of tetraethoxysilane (TEOS) and silanol-terminated polydimethylsiloxane (PDMS). By varying the PDMS amount and the PDMS chain length, **organic-inorg.** hybrid materials have been obtained from brittle xerogels to **soft** elastomers. Compressive stress-strain **curves** have been correlated to materials microstructure.
- ST methylsiloxane ethoxysilane copolymer Ormosil structure mech property;
org inorg hybrid **composite** structure mech property
- IT Xerogels
(Ormosil; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT Rubber, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(Ormosil; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT Ceramers
(polydimethylsiloxane-based; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT Silica gel, preparation
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(polydimethylsiloxane-modified; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT Sol-gel processing
Stress-strain relationship
(preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT 155827-81-9P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(Ormosil; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT 78-10-4, Silicic acid (H_4SiO_4), tetraethyl ester
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)
- IT 9016-00-6D, Poly[oxy(dimethylsilylene)], silanol-terminated
RL: MOA (Modifier or additive use); USES (Uses)
(silica gel modified by; preparation and microstructure vs. compressive property relations of polydimethylsiloxane-modified silica gel-based Ormosil)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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KATHLEEN FULLER EIC1700 272-2505

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(18) Mackenzie, J; J Sol-Gel Sci Tech 1994, V2, P81 HCAPLUS
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L24 ANSWER 20 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:481542 HCAPLUS

DN 131:130996

ED Entered STN: 04 Aug 1999

TI **Composites** of fluoropolymer and hybrid **inorganic-organic** materials and their manufacture

IN Katayama, Shingo; Yamada, Noriko; Shiina, Ikuko

PA Nippon Steel Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08L085-00

ICS C08G079-00; C08L027-12; H01B003-44; H01B003-46

CC 38-3 (**Plastics** Fabrication and Uses)

Section cross-reference(s): 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11209624	A2	19990803	JP 1998-8441	19980120
PRAI	JP 1998-8441		19980120		

AB The **composite** having **high hardness** and low dielec. constant useful as insulating material in electronic equipment, comprises (a) a fluoropolymer and (b) a hybrid **inorg.-organic** material, wherein 50-95 mol% M (metal or metalloid atom) in a M-O-M bond-containing **inorg.** polymer is substituted by Si(R)_n(O-)_{4-n} group (R = **organic** group; n = 1-3) and H in **organic** group is substituted by F and/or Cl. Thus, a mixture of 0.1/0.1/0.1/0.7 (mole ratio) Si(OEt)₄, Ti(OC₃H₇)₄, Si(OC₂H₅)₃(C₂H₄C₆F₁₃) and Si(OC₂H₅)₂(CH₃)₂ was hydrolyzed in the presence of hydrochloric acid in ethanol, mixed with PTFE particles, gelated at 70° and heat treated to give a **composite** showing Rockwell hardness M80 and dielec. constant 2.3.

ST siloxane **org inorg** hybrid **composite** insulator; fluoropolymer **org inorg** hybrid **composite** hardness

IT **Composites**
Hybrid **organic-inorganic** materials

KATHLEEN FULLER EIC1700 272-2505

(manufacture of **composites** of fluoropolymer and hybrid
inorg.-organic materials)

IT Polysiloxanes, uses
Silsequioxanes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(manufacture of **composites** of fluoropolymer and hybrid
inorg.-organic materials)

IT Fluoropolymers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(manufacture of **composites** of fluoropolymer and hybrid
inorg.-organic materials)

IT Electric insulators
(manufacture of **composites** of fluoropolymer and hybrid
inorg.-organic materials for)

IT 78-10-4DP, Tetraethoxysilane, polymers with alkoxysilanes and Titanium
tetraethoxide 78-62-6DP, Diethoxydimethylsilane, polymers with
alkoxysilanes and Titanium tetraethoxide 3087-36-3DP, Titanium
tetraethoxide, polymers with alkoxysilanes 9016-00-6DP,
Dimethylsilanediol polymer, sru, polymers with alkoxysilanes and Titanium
tetraethoxide 31900-57-9DP, Dimethylsilanediol polymer, polymers with
alkoxysilanes and Titanium tetraethoxide 51851-37-7DP, polymers with
alkoxysilanes and Titanium tetraethoxide 101947-16-4DP, polymers with
alkoxysilanes and Titanium tetraethoxide 234434-59-4DP, polymers with
alkoxysilanes and Titanium tetraethoxide
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP
(Preparation); USES (Uses)
(manufacture of **composites** of fluoropolymer and hybrid
inorg.-organic materials)

IT 9002-83-9, Polychlorotrifluoroethylene 9002-84-0 24937-79-9
25038-71-5, Ethylene-tetrafluoroethylene copolymer 25067-11-2
25101-45-5, Ethylene-chlorotrifluoroethylene copolymer 57578-63-9,
Perfluorovinyl ether-tetrafluoroethylene-copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(manufacture of **composites** of fluoropolymer and hybrid
inorg.-organic materials)

L24 ANSWER 21 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:783846 HCAPLUS
DN 132:17876
ED Entered STN: 10 Dec 1999
TI **Organic-inorganic composite** conductive sol
and process for producing the same
IN Tanegashima, Osamu; Ema, Kiyomi
PA Nissan Chemical Industries, Ltd., Japan
SO Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM H01B001-20
ICS H01B001-12; C09K003-16
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 38, 66
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 962943	A1	19991208	EP 1999-110801	19990604

KATHLEEN FULLER EIC1700 272-2505

EP 962943 B1 20031203
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO
JP 11353934 A2 19991224 JP 1998-174131 19980605
US 6211274 B1 20010403 US 1999-325338 19990604
PRAI JP 1998-174131 A 19980605
AB The sol consists of colloidal particles of 5-50 nm of a conductive oxide
such as Zn antimonate and/or indium antimonate and colloidal particles of
2-10 nm of a conductive polymer such as polythiophene(s). This sol can be
used for transparent antistatic coatings, UV absorbers, heat absorbers,
resistors, **hard** coatings of **high** refractive index, and
antireflective coatings.
ST **org inorg composite** conductive sol
IT Heat
(absorbers; **organic-inorg. composite**
conductive sol and process for producing same)
IT Coating materials
(antistatic; **organic-inorg. composite**
conductive sol and process for producing same)
IT Oxides (**inorganic**), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(conductive; **organic-inorg. composite**
conductive sol and process for producing same)
IT Antireflective films
Colloids
Conducting polymers
Resistors
Sols
UV stabilizers
(**organic-inorg. composite** conductive sol and
process for producing same)
IT Polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polythiophenes; **organic-inorg. composite**
conductive sol and process for producing same)
IT 50851-57-5, Polystyrenesulfonic acid
RL: MOA (Modifier or additive use); USES (Uses)
(**organic-inorg. composite** conductive sol and
process for producing same)
IT 25233-34-5, Polythiophene 53125-59-0, Antimony zinc oxide 59355-67-8,
Antimony indium oxide 126213-51-2, Baytron P
RL: TEM (Technical or engineered material use); USES (Uses)
(**organic-inorg. composite** conductive sol and
process for producing same)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Eastman Kodak Co; EP 0678779 A 1995 HCAPLUS
(2) Kansai Shingijutsu Kenkyusho KK; JP 09198926 A 1997 HCAPLUS
(3) Nippon Kayaku Co Ltd; JP 10231444 A 1998 HCAPLUS
(4) Nippon Kayaku KK; EP 0795565 A 1997 HCAPLUS
L24 ANSWER 22 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1999-602957 [52] WPIX
DNN N1999-444647 DNC C1999-175613
TI Weights for attachment to clothing used for physical fitness training.
DC A12 A28 A86 F07 P36
IN DUBOCAGE, B; MAUCOURT, J
PA (POUE) SNPE; (POUE) SNPE SOC NAT POUDRES & EXPLOSIFS SA; (POUE) SOC NAT
POUDRES & EXPLOSIFS

CYC 26

PI EP 953594 A1 19991103 (199952)* FR 9p C08K003-08 <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

FR 2777789 A1 19991029 (199953) A63B021-065

JP 11350216 A 19991221 (200010) 5p A41D013-00

EP 953594 B1 20030827 (200358) FR C08K003-08 <--

R: AT BE CH DE ES FR GB IT LI LU NL PT SE

DE 69910650 E 20031002 (200372) C08K003-08 <--

ADT EP 953594 A1 EP 1999-400905 19990414; FR 2777789 A1 FR 1998-5288 19980428;

JP 11350216 A JP 1999-121465 19990428; EP 953594 B1 EP 1999-400905

19990414; DE 69910650 E DE 1999-610650 19990414, EP 1999-400905 19990414

FDT DE 69910650 E Based on EP 953594

PRAI FR 1998-5288 19980428

IC ICM A41D013-00; A63B021-065; C08K003-08

ICS A41D031-00; A63B021-00; C08G018-10; C08G018-69; C08J003-24

AB EP 953594 A UPAB: 19991210

NOVELTY - Use of weights made from a crosslinked liquid copolymer with powdered tungsten-containing filler for attachment to garments used for physical fitness training.

DETAILED DESCRIPTION - Weights for loading a garment for physical body fitness training consisting of a dense, **soft** and pliable **composite** of a crosslinked **organic** polymeric matrix and a powdered metallic filler dispersed in the matrix, made by heating a pasty castable thermosetting composition comprising

(i) a liquid prepolymer with functional reactive terminal groups, having a molecular weight of 500-10000, selected from polybutadienes, polyesters, polyethers and polyether-esters;

(ii) a crosslinking agent for the prepolymer; and

(iii) a pulverulent tungsten-containing filler.

INDEPENDENT CLAIMS are also included for

(1) the garment for physical body fitness training; and

(2) the above **composite**.

USE - The compositions are especially used for making **composite** plates 2-10 mm thick (claimed) which are used for loading garments to be used for physical training of the body, such as training wear for sports activities and items for retraining and development of the muscles.

ADVANTAGE - The cured compositions are very **soft** and flexible, are non-toxic and have high density, and can be made into sports and training garments which are comfortable to wear.

Dwg.0/0

FS CPI GMPI

FA AB

MC CPI: A08-D01; A08-R; A12-C03; A12-F01; F04-C

L24 ANSWER 23 OF 49 COMPENDEX COPYRIGHT 2004 EEI on STN

AN 1999(40):1023 COMPENDEX

TI Gas separation properties of **organosilicon** plasma polymerized membranes.

AU Roualdes, Stephanie (Lab des Materiaux et Procédés Membranaires, Montpellier, Fr); Van der Lee, Arie; Berjoan, Rene; Sanchez, Jose; Durand, Jean

SO AIChE Journal v 45 n 7 1999.p 1566-1575

CODEN: AICEAC ISSN: 0001-1541

PY 1999

DT Journal

TC Experimental

LA English

KATHLEEN FULLER EIC1700 272-2505

- AB Thin films were polymerized from different **organosilicon** compounds in a radio-frequency plasma deposition process. The properties of the layers were characterized with respect to the deposition rate, the density, the refractive index, and the chemical structure determined by FTIR and XPS analysis. The qualification of the films for gas-selective membranes was tested on different porous substrates using N₂, H₂, O₂, CO₂, and CH₄. Both structure and permeation performances of the synthesized films were correlated with the **composite** plasma parameter V/F center dot M (V: input voltage; F: monomer flow rate; M: monomer molecular weight). At low V/F center dot M ratio, the thin layers are mainly constituted of the left bracket (CH₃)₂-Si(-O)₂ right bracket environment (monomer and polydimethylsiloxane one). Increasing the V/F center dot M results in a more '**inorganic**' chemical structure, higher O/Si ratio, refractive index, and density, the materials tend toward a silicalike structure. Concurrently, the prepared membranes have solution-diffusion-controlled or Knudsen-like separation factors, depending on whether plasma conditions are **soft** or **hard**. (Author abstract) 27 Refs.
- CC 815.1.1 Organic Polymers; 815.2 Polymerization; 932.3 Plasma Physics; 817.1 Plastics Products; 802.3 Chemical Operations; 741.1 Light. Optics
- CT *Metallorganic polymers; X ray photoelectron spectroscopy; Polymeric membranes; Separation; Thin films; Refractive index; Composition; Fourier transform infrared spectroscopy; Polymerization; Plasma enhanced chemical vapor deposition
- ST Gas separation properties; Plasma polymerized membranes; Knudsen like separation factors
- ET N₂; H₂; O₂; C*O; CO₂; C cp; cp; O cp; C*H; CH₄; H cp; V; F; C*H*O*Si; (CH₃)₂; Si(-O)₂; Si cp; (CH₃)₂-Si(-O)₂; O
- L24 ANSWER 24 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN
- AN 1999:149633 HCAPLUS
- DN 130:270600
- ED Entered STN: 09 Mar 1999
- TI Process for preparing ceramers coatings of SiO₂-Al₂O₃ on PMMA by sol-gel method
- AU Liu, Haibing; Zhou, Genshu; Zheng, Maosheng
- CS College of Material Science and Engineering, Xi'an Jiaotong University, Xi'an, 710009, Peop. Rep. China
- SO Gaofenzi Cailiao Kexue Yu Gongcheng (1999), 15(1), 108-110
CODEN: GCKGEI; ISSN: 1000-7555
- PB "Gaofenzi Cailiao Kexue Yu Gongcheng" Bianjibu
- DT Journal
- LA Chinese
- CC 57-1 (Ceramics)
- Section cross-reference(s): 38, 73
- AB **Composite** sols were prepared with metal alkoxide and **inorg** . salt as precursors. The important process factors were studied. Ceramer coatings based on SiO₂-Al₂O₃ were prepared PMMA substrates. The results showed that only suitable components can form good gel coatings; sol aging and the curing process were analyzed. It was found that the growth of polymer sol followed a linear style and the sol was suitable for preparing coatings; an **inorg**. network of Si-O-Al-O-Si formed in the coating during the curing process. The coatings have **high hardness** and great scratch resistance, combining well with the substrates. The transmittance of the sample coated is more than 90%. So, the technol. presented in this article can be used widely for modification of optical plastics.
- ST hybrid alumina silica gel coating PMMA substrate scratch resistance; sol gel coating PMMA substrate scratch resistance; optical coating hybrid

- alumina silica gel PMMA substrate; **org** modified alumina silica hybrid gel optical coating
- IT Silica gel, preparation
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(alumina-containing, **organic** modified, coatings; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT Optical films
(alumina-silica gel-glass, **organic** modified; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT Sol-gel processing
(coating; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT Ceramers
(coatings; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT Coating materials
(scratch-resistant, alumina-silica gel-glass, **organic** modified; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT Optical transmission
(sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT Coating process
(sol-gel; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT 1335-30-4P, Aluminum silicate
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(gel, **organic** modified, coatings; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT 7631-86-9P, Silica, preparation
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(gel-glass coatings, alumina-containing, **organic** modified; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT 2530-83-8
RL: MOA (Modifier or additive use); USES (Uses)
(**organic** modifier; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT 78-10-4, Teos 7446-70-0, Aluminum trichloride, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT 1344-28-1P, Alumina, preparation
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(silica gel coatings containing, **organic** modified; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)
- IT 9011-14-7, 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (substrate; sol-gel processing and properties of **organic** modified ceramer SiO₂-Al₂O₃ coatings on PMMA substrates)

L24 ANSWER 25 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN
AN 990460584 JICST-EPlus
TI **Composite** material development studied from **organism** structure.
AU MIYAIRI HIROO
CS Tokyo Med. and Dent. Univ.
SO Kogyo Zairyo (Engineering Materials), (1999) vol. 47, no. 5, pp. 74-80.
Journal Code: F0172A (Fig. 9, Tbl. 4, Ref. 4)
CODEN: KZAIA5; ISSN: 0452-2834
CY Japan
DT Journal; Commentary
LA Japanese
STA New
AB This paper explains the titled materials : 1) Types of biomaterials ; **hard** textures such as bones and teeth and **soft** textures for skins and blood, 2) these are formed during biogrowth processes to express biofunctions (I), 3) the former textures have laminated structures of a dense layer to withstand exterior forces and a porous layer to express I, 4) plastics based **composites** are in practically designable stage to meet these ideal functions and 5) examples of GFR unsaturated polyesters ; material composition, flexural strength and fracture strength.
CC YH07070P; YM03040V (678.674; 677.5.021.1)
CT material design; biomedical tissue; fiber reinforced plastic; glass fiber; unsaturated polyester; optimum design; structure analysis; structural material; bone; bending strength; fracture strength; spongy tissue; structure formation; medical material
BT design; **organization**; reinforced plastic; **composite** material; material; **inorganic** man made fiber; man-made fiber; fiber; high temperature fiber; thermosetting plastic; plastic; polyester; polymer; analysis; skeleton; musculoskeletal system; mechanical property; property; strength; parenchyma
ST biological material; spongy bone

L24 ANSWER 26 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:244101 HCAPLUS
DN 126:226020
ED Entered STN: 16 Apr 1997
TI Radical-polymerizable reactive **organic-inorganic composite** particles having **high hardness** and mechanical resilience
IN Kuramoto, Shigefumi; Sakai, Yasuhiro
PA Nippon Catalytic Chem Ind, Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08L101-10
ICS C08L083-10; C08F299-08
CC 37-6 (**Plastics** Manufacture and Processing)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09031343	A2	19970204	JP 1996-113990	19960508

JP 3045471 B2 20000529
PRAI JP 1995-117495 A 19950516
AB Title particles include a (meth)acrylic resin skeleton and a polysiloxane skeleton having in its mol. an **organosilicon** containing a Si atom directly bonded with ≥ 1 C atom of the (meth)acrylic resin skeleton at polysiloxane content (as SiO₂) 25-85% and has ≥ 0.05 mmol/g radical groups. A solution containing NH₃ solution 2.9, methanol 10.1, and H₂O 141.1 g was mixed with a solution containing γ -methacryloxypropyltrimethoxysilane 26, methanol 54, and 2,2'-azobis-(2,4-di-Mevaleronitrile) 0.14 g, subjected to hydrolytic condensation, and heated under N₂ and cooled to room temperature to obtain a suspension which was filtered, washed with methanol, then vacuum dried 2 h at 50°.

ST siloxane **org inorg composite** particle blend
IT Polysiloxanes, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reactive **organic-inorg. composite** particles having **high hardness** and superior in mech. resilience)

IT 4419-11-8, 2,2'-Azobis-(2,4-dimethylvaleronitrile)
RL: CAT (Catalyst use); USES (Uses)
(reactive **organic-inorg. composite** particles having **high hardness** and superior in mech. resilience)

IT 29382-69-2P 52004-97-4P, γ -Methacryloxypropyltrimethoxysilane homopolymer 167489-11-4P 169501-72-8P 188309-20-8P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reactive **organic-inorg. composite** particles having **high hardness** and superior in mech. resilience)

L24 ANSWER 27 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN
AN 970720975 JICST-EPlus
TI Fundamental Study of Experimental Visible Light-activated Direct Bonding Adhesives with **Organic** Filler.
AU OKINA HITOMI
CS Fukuokashikadaigaku Daigakuin
SO Fukuoka Shika Daigaku Gakkai Zasshi (Journal of Fukuoka Dental College), (1997) vol. 24, no. 2, pp. 199-215. Journal Code: Y0077A (Fig. 20, Tbl. 2, Ref. 39)
ISSN: 0385-0064
CY Japan
DT Journal; Article
LA Japanese
STA New
AB Experimental BisGMA/TEGDMA-based visible light-activated direct bonding adhesives (EDBAs) with different volumes (40, 50, 60 and 70vol%) of polymethyl methacrylate (PMMA) filler, which were **softer** than **inorganic** filler, were prepared in order to reduce enamel damage during bracket removal. The effect of PMMA filler content on the physical properties (viscosity, water sorption, Knoop **hardness**, flexural strength, bond strength with and without metal, and ceramic brackets to etched enamel, debonding strength and abrasive wear) of EDBAs was investigated. Their physical properties were compared with those of Kurasper F (CF) and Transbond (TB). The results were as follows: 1. The viscosity increased relative to filler content increase. Meanwhile, water sorption and Knoop **hardness** were unchanged by the filler

content. The viscosity and Knoop **hardness** were statistically lower than those of CF and TB, but the amount of water sorption was higher than that of CF and TB. 2. The flexural strengths decreased relative to the filler content increase. They were statistically lower than those of CF and TB. 3. The bond strengths with and without metal, and ceramic brackets were statistically lower than those of CF and TB, regardless of storage conditions. There were significant relationships between the bond strengths with and without metal, and ceramic brackets and flexural strengths after immersion in water for 1 day. 4. The debonding strengths of EDBAs containing 50vol%, and 60vol% filler were comparable after immersion in water for 1 day and 30 days; however, they were statistically lower than those of CF and TB, regardless of storage conditions. 5. EDBAs with 60vol% filler showed greater abrasive wear than that with 50vol% filler. Both EDBAs showed greater abrasive wear than CF and TB. This study suggested that EDBAs have sufficient bond strengths and bonding durability, and also have potential debonding properties suitable for bracket removal without enamel damage. (author abst.)

CC GT06000B (616.314-7)

CT dental bonding; dental material; **composite** resin; mechanical property; adhesive strength; photopolymerization; photopolymer; electron microscopy

BT dental care; therapy; adhesion(bond); bonding and joining; medical material; material; property; strength; photochemical reaction; chemical reaction; polymerization; photosensitive material; photographic material; reactive polymer; functional polymer; macromolecule; microscopy; observation and view

L24 ANSWER 28 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3

AN 1997:112807 HCAPLUS

DN 126:118626

ED Entered STN: 17 Feb 1997

TI **Composites** of transparent resins and **inorganic** particles

IN Fukuda, Tadanori; Watase, Takanori

PA Toray Industries, Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08K003-00

ICS C08L101-00

CC 37-6 (**Plastics** Manufacture and Processing)

Section cross-reference(s): 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08311238	A2	19961126	JP 1995-117173	19950516
PRAI	JP 1995-117173		19950516		

AB Title materials, showing **high hardness** and resistance to heat, fire, weather, and abrasion, useful for coatings, films, sheets, etc., comprise a transparent resin and **softenable** dispersed **inorg.** particles with refractive index n that is ± 0.1 of that of the resin. Thus, a mixture of 70 parts Acrysymp SY 105 [low-mol. weight poly(Me methacrylate)], 30 parts powdered low-m.p. comprising Pb2O5Al2O3SiO2Na2O, KBM 503 (silane coupler), and 1 part Bz202 was treated at 60-100° for 10 h to give a colorless transparent hybrid material.

ST **org inorg** hybrid material; transparent resin
inorg particle blend; glass particle resin **composite**

KATHLEEN FULLER EIC1700 272-2505

- material; polymethyl methacrylate glass particle **composite**;
softened inorg particle resin blend
- IT Glass, uses
RL: MOA (Modifier or additive use); USES (Uses)
(particles; transparent resins containing **inorg.** particles for hybrid materials with rigidity)
- IT Transparent materials
(transparent resins containing **inorg.** particles for hybrid materials with rigidity)
- IT Epoxy resins, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(transparent resins containing **inorg.** particles for hybrid materials with rigidity)
- IT 9011-14-7, Poly(methyl methacrylate)
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(Acrysyrap SY 105; transparent resins containing **inorg.** particles for hybrid materials with rigidity)
- IT 25053-15-0, Daiso Dap 33435-76-6, Bisphenol A-epichlorohydrin-hexahydrophthalic anhydride copolymer
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(transparent resins containing **inorg.** particles for hybrid materials with rigidity)
- L24 ANSWER 29 OF 49 JAPIO (C) 2004 JPO on STN
AN 1996-248204 JAPIO
TI OPTICAL ELEMENT
IN KATO HIROHISA; MURAI YUKIO
PA ITO KOGAKU KOGYO KK
PI JP 08248204 A 19960927 Heisei
AI JP 1995-45867 (JP07045867 Heisei) 19950306
PRAI JP 1995-45867 19950306
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1996
IC ICM G02B001-11
ICS B29D011-00; B32B007-02; B32B027-00; C09D175-04; G02B001-10
ICI B29K083:00
AB PURPOSE: To improve the weatherability and UV resistance of the element and to prevent the optical interference even if the **organic** glass substrate has a high refractive index by interposing a primer layer formed with a specified coating material between the **organic** glass and silicone-cured coating film.
CONSTITUTION: A silicone-cured coating film (**hard** coat) and a single or double- layer **inorg.** antireflection film are laminated on the surface of **organic** glass to constitute the optical element. In this case, a primer layer formed by a coating material with urethane elastomer, titanium-oxide **composite** fine particle and the hydrolyzate of **organoalkoxysilane** as the essential component is interposed between the **organic** glass and **hard** coat. The urethane elastomer as the essential component should be the thermoplastic one formed with a **soft** phase consisting of a long-chain polyol and polyisocyanate and a **hard** phase consisting of a short-chain polyol and polyisocyanate. Meanwhile, the diameter of the titanium- oxide fine particle is controlled to 1-100nm, and the optimum composition ratio is defiend as (zirconium oxide)/(titanium oxide)=0.001 to 0.400.
COPYRIGHT: (C)1996,JPO
- L24 ANSWER 30 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN
AN 970132594 JICST-EPlus
TI Preparation and Mechanical Properties of Poly(vinyl acetate)/Silica Hybrids Obtained by a Sol-Gel Process: Effect of Methyl Groups in Silicon

Alkoxides.

AU YANO S
FURUKAWA T; KODOMARI M

CS National Inst. Materials and Chemical Res.
Shibaura Inst. Technol.

SO Busshitsu Kogaku Kogyo Gijutsu Kenkyujo Hokoku (Journal of the National
Institute of Materials and Chemical Research), (1996) vol. 4, no. 6, pp.
231-237. Journal Code: L1916A (Fig. 11, Ref. 14)
ISSN: 0919-7087

CY Japan

DT Journal; Article

LA English

STA New

AB A copolymer of vinyl acetate(VAC) and vinyl triethoxysilane(VTES) having
90mole% of VAC component was synthesized and incorporated with silica by
the sol-gel process involving silicon alkoxides. For the silicon
alkoxides, we used tetraethoxysilane(TEOS), methyltriethoxysilane(MTES),
and dimethyldiethoxysilane(DMDES). The mechanical properties of these
copolymer hybrids were measured and then compared with each other. The
tensile strength of the copoly(VAC/VTES)/TEOS hybrids was higher than that
of the PVAc/TEOS hybrids due to bonding between the copolymer and the
silica network. The addition of TEOS and MTES increased the strength to a
maximum of 50MPa and 43MPa, respectively, whereas DMDES decreased it. The
addition of 20wt% of either MTES or DMDES increased the elongation. The
dynamic moduli, G', of the hybrids prepared from TEOS and MTES were
increased, whereas that of the hybrid from DMDES was decreased because
this alkoxide has two methyl groups in the alkoxide chain and plasticized
the silicon network. As the amount of added alkoxide was increased, the
position of the tan Δ peak shifted to a higher temperature range for
TEOS and MTES, but to a lower range for DMDES. The hybrids prepared from
TEOS were **hard** and brittle, but when we added both DMDES and
TEOS with the copolymer we could control the mechanical properties of the
hybrids from **hard** and brittle to tough and **soft**
materials by varying the amount of added DMDES. (author abst.)

CC YC03020V; CG02023D (666.5/.6; 544.23-16.03:539.3/.8)

CT polymer complex; **composite** material; sol-gel process; polyvinyl
acetate; silica glass; copolymer; dynamic modulus of elasticity;
organic-inorganic polymer hybrid; enol; aliphatic
alcohol; aliphatic carboxylic acid; enol ester; vinyl compound;
unsaturated alcohol; silicon oxyacid derivative; **inorganic** acid
ester

BT macromolecule; complex(substance); material; polyvinyl ester; polymer;
thermoplastic; plastic; glass; ceramics; elastic modulus; coefficient;
olefin compound; hydroxy compound; alcohol; carboxylic acid;
carboxylate(ester); ester; silicon compound; carbon group element compound

L24 ANSWER 31 OF 49 JAPIO (C) 2004 JPO on STN

AN 1995-204776 JAPIO

TI SOLIDIFYING METHOD OF SAND

IN NAKAMURA TSUTOMU

PA SEIBUTSU KANKYO SYST KOGAKU KENKYUSHO:KK

PI JP 07204776 A 19950808 Heisei

AI JP 1994-30785 (JP06030785 Heisei) 19940117

PRAI JP 1994-30785 19940117

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1995

IC ICM B22C001-10
ICS B22C001-18; B22C001-22

AB PURPOSE: To reuse molding sand by solidifying particles of-sand by using
an **inorg.-organic composite** formed by bringing

a water-soluble **inorg.** compound and **organic** high polymer compound into reaction as a binder, thereby repetitively attaining solidifying and **softening**.

CONSTITUTION: The **inorg.-organic composite**

having a binding effect is formed and is made into a sol state. This **composite** is uniformly mixed with the sand and thereafter, the moisture of the system is controlled, by which the **composite** is collected the contact points of the particles of the sand. The **hard** sand mold is formed by changing the **composite** to a gel state to exhibit the binding force. Next, the water content of the **hard** sand mold is increased, by which the gel of the **composite** is changed to the sol state and the binding force is lost. The sand restores the state before molding. The **composite** is produced by bringing water-soluble **inorg.** compound, for example, magnesium chloride and the **organic** high polymer compound, for example, sodium polyacrylate into reaction with an aqueous system.

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L24 ANSWER 32 OF 49 JAPIO (C) 2004 JPO on STN

AN 1995-162190 JAPIO

TI **COMPOSITE** BOARD FOR MAGNETIC SHIELDING MATERIAL, MAGNETIC SHIELDING MATERIAL, AND PREPARATION THEREOF

IN YASUOKA MASATO; KITADA KAGEAKI

PA SUMITOMO SPECIAL METALS CO LTD

PI JP 07162190 A 19950623 Heisei

AI JP 1993-341539 (JP05341539 Heisei) 19931209

PRAI JP 1993-341539 19931209

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1995

IC ICM H05K009-00

ICS B32B015-08

AB PURPOSE: To provide adhesive strength enough to withstand stamping by press and prevent loss of adhesive strength after magnetic firing, by treating a **soft** magnetic metal plate, the core material, with a filler composed of silica fine powder with an average particle size of a specified value or below, and laminating a non-magnetic metal plate thereon.

CONSTITUTION: Required parts or the whole of either or both surfaces of a magnetically **soft** metal plate 1 is treated with a filler composed of silica fine powder of 50nm or below in average particle size using a silane coupling agent. Non-magnetic metal plates 2 are laminated thereon using an **organic** adhesive dispersed in **organic** resin. The silane coupling agent is an additive used in surface treatment for **inorganic** fillers of silica fine powder for the improvement of adhesion between **organic** resin and **inorganic** filler. Five-15 pts. of **hardening** agent is added to the **organic** adhesive to ensure its adhesive strength. It is preferable that the **inorganic** filler and the silane coupling agent are compounded at a rate of 1 pt. to 0.5-1.5 pts.

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L24 ANSWER 33 OF 49 COMPENDEX COPYRIGHT 2004 EEI on STN DUPLICATE 4

AN 1997(43):1644 COMPENDEX

TI Surface properties of nylon-clay hybrid materials irradiated with Ar ion.

AU Itoh, Y. (TOYOTA Central Res.and Dev.Lab., Inc., Aichi-gun, Aichi 480-11, Japan); Azuma, H.; Itoh, T.; Noda, S.

SO Hyomen Gijutsu/Journal of the Surface Finishing Society of Japan v 46 n 11 1995.p 1044-1049

CODEN: HYGIEX ISSN: 0915-1869

PY 1995

KATHLEEN FULLER EIC1700 272-2505

DT Journal
LA Japanese
AB Surface properties of ion-irradiated **organic-inorganic** hybrid materials have been investigated. Disk samples of a nylon-clay hybrid (NCH) material were irradiated with 2 MeV Ar plus to doses of 1×10^{14} , 1×10^{15} and 1×10^{16} ions/cm² and its tribological properties and water wettability were measured and compared with those of the nylon that was ion-irradiated under the same conditions. NCH is a nanometer-order hybrid which consists of a nylon matrix and silicate layers and is superior to nylon in heat resistance and strength. Tribological properties were measured by pin-on-disk tests without lubricant using steel (SUJ 2) balls as pins. Under ion irradiation to a dose of 1×10^{14} or 1×10^{15} ions/cm², the wear resistance of the NCH decreased, becoming equivalent to that of unirradiated nylon, whereas the wear resistance of nylon was **hardly** changed by the same treatment. Ion irradiation to a dose of 1×10^{16} ions/cm² improved wear resistance and decreased the coefficient of friction for both the NCH and nylon. In particular, in a 10^{-4} Pa vacuum, the coefficient of friction for the NCH and nylon ion irradiated to a dose of 1×10^{16} ions/cm² was extremely low (less than 0.1). The contact angle of the NCH with distilled water was increased from 68 degree to 80 degree by ion irradiation. Such a reduction in wettability was also observed for ion-irradiated nylon. Fourier transform infrared spectroscopy, Raman spectroscopy and spectral-reflection measurement by laser plasma **soft** X-ray spectroscopy revealed that the structure of the NCH was destroyed by ion irradiation and that **hard** amorphous carbon formed on the surface of the NCH samples that were ion-irradiated at a dose of 1×10^{16} ions/cm². This suggests that these structural changes produced by ion irradiation determine the tribological properties of the NCH. 10 Reference

CC 815.1.1 Organic Polymers; 483.1 Soils and Soil Mechanics; 932.1 High Energy Physics; 931 Applied Physics Generally; 931.2 Physical Properties of Gases, Liquids and Solids

CT ***Composite** materials; Surface structure; Polyamides; Clay; Radiation effects; Ion beams; Tribology; Wear resistance

ST Experimental study; Dispersion reinforced material; Argon ion; Wettability; Structure modification; Radiation dose

ET Ar

L24 ANSWER 34 OF 49 JAPIO (C) 2004 JPO on STN
AN 1994-177572 JAPIO
TI PARAMAGNETIC SUBSTANCE-CONTAINING FAR INFRARED RAY GRAPHITE ELECTROMAGNETIC SHIELDING SHEET
IN MORI NORIO
PA MORI NORIO
PI JP 06177572 A 19940624 Heisei
AI JP 1992-299055 (JP04299055 Heisei) 19920929
PRAI JP 1992-299055 19920929
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1994
IC ICM H05K009-00
ICS H01F001-00

AB PURPOSE: To obtain an electromagnetic shielding sheet which contains paramagnetic substance and possesses far infrared radiation by a method wherein **composite** material composed of **soft** magnetic metal oxide material, **hard** magnetic metal oxide material, and graphite power material is infiltrated into fiber material and fixed. CONSTITUTION: **Soft** magnetic metal oxide material and **hard** magnetic metal oxide material are granulated, burned at temperatures of 1000 to 1200°C, and then processed into **soft** magnetic metal oxide powder material and **hard** magnetic metal

oxide powder material. Carbon material is pre-burned and then burned with the use of electricity at temperatures of 2000 to 3000°C by resistance heating into a graphite solid material, which is processed into graphite powder material. Paramagnetic material-containing far infrared ray graphite electromagnetic shielding material 1 composed of **soft** magnetic metal oxide material, **hard** magnetic metal oxide material, and graphite power material is infiltrated into an **inorganic** or **organic** fiber material 2 and fixed, and then the fiber material impregnated with shielding material is burned at temperatures of 200 to 400°C for the formation of a paramagnetic material-containing far infrared ray graphite electromagnetic shielding sheet.

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L24 ANSWER 35 OF 49 EMA COPYRIGHT 2004 CSA on STN
AN 1993(5):C1-D-1099 EMA
TI Physio-Mechanical Properties of Absorbable **Composites**: CSM
Short Fiber Reinforced PDS and PGA.
AU Steckel, M.G. (Drexel University)
SO p. N.P.
DT Dissertation
CY United States
LA English
AB The physio-mechanical properties of five PDS/CSM and two PGA/CSM compositions were investigated. The primary application of such **composites** would be for medical implant devices for **soft** and/or **hard** tissue repair. The **composites** were comprised of either a PDS (poly-p-dioxanone) or PGA [poly(glycolic acid)] continuous polymer phase, with a dispersed short fiber reinforcement of CSM (calcium sodium metaphosphate). The PDS and PGA are widely used in absorbable sutures and devices; the **inorganic** CSM fiber is an experimental material reported to undergo enzymatic hydrolysis. The preparation of test coupons included: CSM pH neutralization treatment (two methods), melt compounding of fiber/polymer; and compression molding. The materials were characterized for flexural and shear properties (ASTM D790, D732) at baseline (0 day, ambient) and following in vitro conditioning, i.e. immersion in buffer solution (7.27 pH, 37 deg C) for time intervals ranging from 1-70 days. The post in vitro materials were tested at ambient and saturated conditions. The addition of 30% volume fraction (V sub f) CSM fiber to PDS increased its flex modulus 407% (0.94 to 3.83 GPa). However, the **composites** physio-mechanical properties were rapidly and severely compromised in vitro , apparently due to disruption of the fiber/polymer interface. A modulus retention of only 25% at 1 day in vitro was observed for the same PDS/CSM **composite** when tested in a saturated condition. The PDS/CSM and PGA/CSM **composites** exhibited extended in vitro properties relative to the non-reinforced polymers. Examples of this behavior included: at 70 days in vitro , the PDS/CSM (30% V sub f) exhibited a 10x higher strength than PDS (10.5 to 1.02 MPa), and at 10 days in vitro , the PGA/CSM (30% V sub f) exhibited 14x higher strength than PGA (38.6 to 2.7 MPa). Limited evaluations of CSM pH neutralization methods, fiber length, and volume fraction effects on **composite** properties are reported. Comparisons of experimental flex modulus vs. theoretical predictions were made using the "Halpin-Tsai/laminate analogy" model; the model overstated the experimental results by 16-46%. (DA9237896).
CC D Composites; C1 Mechanical Properties; D-C1
CT Dissertation; **Organic** fiber reinforced plastics: Mechanical properties; Shear properties; Biocompatibility; Surgical implants:

Materials selection
ET D; V

L24 ANSWER 36 OF 49 EMA COPYRIGHT 2004 CSA on STN
AN 1992(12):A1-D-595 EMA
TI **Organic-Inorganic** Hybrid Materials. II. Compared
Structure of Polydimethylsiloxane and Hydrogenated Polybutadiene Based
Ceramers.
AU Surivet, F. (Corning Europe); Lam, T.M. (Institut National des Sciences
Appliquees (France)); Pascault, J.-P. (Institut National des Sciences
Appliquees (France)); Mai, C. (GEMPPM; Institut National des Sciences
Appliquees (France); Corning Europe)
SO Macromolecules (12 Oct. 1992) 25, (21) Graphs, 30 ref. p. 5742-5751
ISSN: 0024-9297
DT Journal
CY United States
LA English
AB Different ceramer networks were successfully prepared in bulk or in
solution. High transparency was observed for all the samples based on
hydrogenated polybutadiene (H-PBD) and polydimethylsiloxane (PDMS)
oligomers. These materials are microphase-separated materials due to the
thermodynamic incompatibility between the different constitutive units. A
similar microstructure exists in both types of samples: silicate clusters
(or more precisely, polysiloxane clusters) including the cross-link
points are dispersed in the oligomer-rich phase. In the case of PDMS
ceramers, the three types of constitutive units are immiscible, so the
morphology of such materials may be described by a three-phase system
including the **soft** phase, practically pure in PDS, the silicate
clusters, and an interfacial region containing the urethane-urea units.
The structure of the polymer obliged this mixed phase to be between the
soft and the **hard** segments. For H-PBD ceramers, the
soft segments and the urethane-urea units are miscible, and a
two-phase model may schematize the H-PBD ceramer structure. In every
case, good correlation was observed between the clusters separation
distances and the end-to-end distance of the oligomers. These schematic
models are consistent with the experimental results: they explain the
existence of a periodicity in the networks and the fact that the
correlation distance increases with increasing oligomer length.
CC D Composites; Al Constitution and Structural Hardening; D-Al
CT Journal Article; Sol gel process; Networks; Polybutadienes:
Composite materials; Silicone resins: **Composite**
materials; Polyurethane resins: **Composite** materials; Ceramic
matrix **composites**: Phases (state of matter); Morphology; Phase
separation
ET B*D*H*P; PBD; P cp; cp; B cp; D cp; H-PBD

L24 ANSWER 37 OF 49 JAPIO (C) 2004 JPO on STN
AN 1991-231689 JAPIO
TI RACKET
IN YAMAGISHI MASAHIRO; EDAKAWA HIROSHI
PA TORAY IND INC
PI JP 03231689 A 19911015 Heisei
AI JP 1990-25716 (JP02025716 Heisei) 19900205
PRAI JP 1990-25716 19900205
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991
IC ICM A63B049-00
ICS A63B049-10
ICA A63B051-02; B29D031-00; B32B007-02
AB PURPOSE: To restrain impact vibrations and expand sweet spots in hitting a

ball by securing a **composite** material consisting of a specified vibration restraining material and buffer material fixedly to a gut of a racket through the buffer material.

CONSTITUTION: A **composite** material 4 having tow combined layers of a specified vibration restraining material 5 and buffer material 6 is secured fixedly to a gut 1 through the buffer material 6. For the vibration restraining material 5 is preferably used a resin setting composition mainly containing an epoxy resin having fluidity at room temperature through 100°C, a polyamide resin and an **inorganic** filler selected from graphite, ferrite and mica. The resin setting composition has the high degree of freedom of working to provide easily a laminated composition with the buffer material and display a **soft** and extremely excellent vibration attenuating effect. Also, for the buffer material 6 are used **inorganic** or **organic** elastomer, rubbery elastomer, polymer gel or the like having 5.0kg/cm² or less of compression **hardness** in 25% compression specified by JIS K676 and functions for improving and aiding the attenuation of impact vibrations of the vibration restraining material.

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L24 ANSWER 38 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 5
 AN 1990:480341 HCAPLUS
 DN 113:80341
 ED Entered STN: 01 Sep 1990
 TI PTFE-rubber-metal **composite** gaskets for automobile engines.
 IN Asaumi, Hiroshi; Yoshida, Takehiro; Suzuki, Shinzaburo; Hirai, Takene; Miyata, Minoru
 PA Nichias Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09K003-10
 ICS F16J015-12
 CC 39-15 (Synthetic Elastomers and Natural Rubber)
 Section cross-reference(s): 38, 55, 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02022375	A2	19900125	JP 1988-171937	19880712
	JP 06062933	B4	19940817		
PRAI	JP 1988-171937		19880712		

AB The title gaskets with good oil and water resistance comprise **inorg.** filler-containing PTFE sheets, **organic soft** layers, and metal supports. Thus, soaking a phosphate-treated hook-containing steel panel in a nitrile rubber composition [to form a layer with **hardness** (JIS K 6301, A) 80], drying at 100° for 0.5 h, and sandwich-bonding with 2 CD-1 (PTFE) sheets containing MA 100, ASF 170, and Catarupo (kaolinite) at 103 kg/cm², gave a **composite** showing good oil and water resistance (1%; ASTM F 104) and sealability (<20 kg/cm²-g).

ST PTFE nitrile rubber steel gasket; water resistance PTFE **composite** gasket; oil resistance PTFE **composite** gasket

IT Carbon black, uses and miscellaneous
 Kaolinite-group minerals

RL: USES (Uses)

(PTFE-containing **composites** with rubber-coated metals, for gaskets)

IT Water-resistant materials

KATHLEEN FULLER EIC1700 272-2505

(PTFE-rubber-metal **composites**, for gaskets)
IT Gaskets
(PTFE-rubber-metal **composites**, oil- and water-resistant)
IT Rubber, nitrile, uses and miscellaneous
RL: USES (Uses)
(metals coated with, PTFE laminates of, for gaskets)
IT Metals, uses and miscellaneous
RL: USES (Uses)
(panels, rubber-coated, PTFE laminates of, for gaskets)
IT Chemically resistant materials
(oil-resistant, PTFE-rubber-metal **composites**, for gaskets)
IT 128769-15-3, ASF 170
RL: USES (Uses)
(PTFE-containing **composites** with rubber-coated metals, for gaskets)
IT 12597-69-2, Steel, uses and miscellaneous
RL: USES (Uses)
(panels, rubber-coated, PTFE laminates of, for gaskets)
IT 9003-18-3
RL: USES (Uses)
(rubber, metals coated with, PTFE laminates of, for gaskets)
IT 9002-84-0, PTFE
RL: USES (Uses)
(sheets, **inorg.** filler-containing, **composites** with rubber-coated metals, for gaskets)

L24 ANSWER 39 OF 49 JAPIO (C) 2004 JPO on STN
AN 1990-267810 JAPIO
TI HEAT CONDUCTIVE ELECTRIC INSULATOR
IN KASHIDA SHU; SHIMAMOTO NOBORU; YONEYAMA TSUTOMU
PA SHIN ETSU CHEM CO LTD
PI JP 02267810 A 19901101 Heisei
AI JP 1989-89198 (JP01089198 Heisei) 19890407
PRAI JP 1989-89198 19890407
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990
IC ICM H01B003-46
AB PURPOSE: To make the surface flexible and improve heat conductivity by laminating a specified synthetic resin film on the **hardened** material surface of a determined silicon rubber **composite**.
CONSTITUTION: On the surface of a **hardened** material formed by **hardening** a silicon rubber **composite** containing **organopolysiloxane** and a heat conductive **inorganic** filler as main components, a synthetic resin film less than 10 μ m in thickness having a **softening** point of 40-120 $^{\circ}$ C is laminated.
Any **hardenable organopolysiloxane** can be used without particular limitation, and when a one of crude rubber form having a high viscosity is used, the **composite** is rapidly **hardened**, and a heat conductive electric insulator excellent in rubber elasticity can be obtained. As the heat conductive **inorganic** filler, Al₂O₃, MgO, SnO, SiC, Al nitride and quartz can be used. The quartz, alumina, and Al nitride are used in 300-1200 parts per 100 parts (by weight) of **organopolysiloxane**, and B nitride is in 100-500 parts. As the film laminating synthetic resin, resins of polyethylene, ethylene vinyl monoacetic polymerization and polyurethane series are used.
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L24 ANSWER 40 OF 49 JAPIO (C) 2004 JPO on STN
AN 1990-022376 JAPIO

TI **SOFT COMPOSITE GASKET**
IN ASAUMI HIROSHI; YOSHIDA TAKEHIRO; SUZUKI SHINZABURO; HIRAI TAKENE; MIYATA MINORU
PA NICHIAS CORP
PI JP 02022376 A 19900125 Heisei
AI JP 1988-171938 (JP63171938 Showa) 19880712
PRAI JP 1988-171938 19880712
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990
IC ICM C09K003-10
ICS F16J015-10
AB PURPOSE: To obtain the subject gasket having excellent heat-resistance and sealing performance, free from the problem of environmental pollution and useful for valve, etc., by filling a **soft organic** material in a recess formed of a sheet substrate containing a polytetrafluoroethylene resin and an **inorganic** filler as essential components.
CONSTITUTION: The objective gasket having excellent oil-resistance, water-resistance and stress-relaxation rate and continuously usable over a long period to enable the reduction of maintenance cost is produced by filling a **soft organic** material 2 (e.g., a material having a spring **hardness** A of $\leq 90^\circ$; measured in conformity to JIS K6301) into a recess 3 having an opening area of $\leq 40\%$ and formed on a sheet substrate composed of $\geq 10\text{wt.}\%$ of a polytetrafluoroethylene resin and 60-90wt.% of an **inorganic** filler.
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L24 ANSWER 41 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN
AN 910103341 JICST-EPlus
TI Introduction of laboratories. Tokyo Institute of technology.
AU KAMIO AKIHIKO
CS Tokyo Inst. of Technology
SO Imono (Journal of Japanese Foundry Engineering Society), (1990) vol. 62, no. 12, pp. 1080-1081. Journal Code: G0096A (Fig. 3)
CODEN: IMNOA9; ISSN: 0021-4396
CY Japan
DT Journal; Commentary
LA Japanese
STA New
CC WB01030N; WE04030R (669.017:620.181; 669-492)
CT university; laboratory; solidification structure; solid solution; eutectic alloy; aluminum base alloy; copper base alloy; monotectic reaction; magnesium base alloy; liquid metal forging; mechanical property; rapid quenching; freezing and solidification; dispersion **hardening** alloy; silicon carbide; ceramic fiber; whisker; fiber reinforcement; precipitation(phase separation); work **hardening**; **softening**; metal structure(microstructure)
BT school; **organization**; solid(matter); alloy; metallic material; light alloy; nonferrous alloy; phase transformation; phase transition; reaction; pressure casting; casting(metal); forging; plastic working; working and processing; property; quenching(cooling); heat treatment; treatment; cooling; **composite** material; material; silicon compound; carbon group element compound; carbide; carbon compound; **inorganic** man made fiber; man-made fiber; fiber; high temperature fiber; needle-like crystal; crystal; strengthening; modification; phase separation; separation; **hardening**

L24 ANSWER 42 OF 49 EMA COPYRIGHT 2004 CSA on STN
AN 1989(9):C1-D-1849 EMA
TI **Composites** of Polyvinyl ChlorideWood Fibers. IV. Effect of the

Nature of Fibers.

- AU Maldas, D.; Kokta, B. V.; Daneault, C.
CS Universite du Quebec a Trois-Rivieres
SO J. Vinyl Technol. (Jun 1989) 11, (2) p. 90-99
ISSN: 0193-7197
DT Journal
LA English
AB The suitability of different pulps (e.g. chemithermomechanical, kraft, tempure, temalfa, cotton, and sawdust) as well as various wood species (e.g. **softwood**, spruce; **hardwood**, aspen and birch) as the reinforcing filler for thermoplastic **composites** of PVC (two different grades) have been evaluated on the basis of mechanical properties. Mechanical properties of the non-treated **composites** were improved by the addition of a coupling agent (poly(methylene (polyphenyl isocyanate))) either in pure state or in solution, and by the pre-treatment of the fibers by encapsulation. The order of reactivity of the pulps varies widely with the change in the grades of thermoplastics and the quality of treatment. Due to the interference of properties of the pulps in the **composites**, the relative reactivity changes. Graphs. 23 reference
- CC D Composites; C1 Mechanical Properties; D-C1
CT Polyvinyl chlorides: **Composite** materials; **Organic** fibers: **Composite** materials; **Organic** fiber-**inorganic** matrix **composites**: Mechanical properties; Filled plastics: Mechanical properties; Tensile properties: Composition effects; Elongation: Composition effects; Impact strength: Composition effects; Modulus of elasticity: Composition effects
- L24 ANSWER 43 OF 49 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1988-009081 [02] WPIX
DNC C1988-004009
TI **Composites** of short cellulosic fibres and vinyl chloride polymers - contain **organic** isocyanate as bonding agent to improve mechanical properties of derived thermoplastic mouldings.
- DC A14 A81 A88 F09
IN BELAND, P; KOKTA, B V
PA (BELA-I) BELAND P; (KOKT-I) KOKTA B V
CYC 2
PI GB 2192398 A 19880113 (198802)*
GB 2192398 B 19900214 (199007)
CA 1339711 C 19980317 (199819) C08L027-06
ADT GB 2192398 A GB 1987-5045 19870304; CA 1339711 C CA 1986-513361 19860709
PRAI CA 1986-513361 19860709
IC **C08K005-16**; C08L001-00; C08L027-06
ICM C08L027-06
ICS **C08K005-16**; C08L001-00
AB GB 2192398 A UPAB: 19930923
A **composite** comprises 1-95 (pref. 1-50)weight% discontinuous cellulose fibres (I), dispersed in 1-95wt.% of a vinyl chloride polymer matrix (II), and bonded to each other by reaction with 0.1-10wt.% of an isocyanate (III); with 0-50wt.% plasticiser, and 0-50wt.% **inorganic** filler. Pre-treated fibres may be employed comprising (I) with 1-25wt.% of a polymer and 0.1-10wt.% of bonding agent. Typically the polymer and bonding agent used in pre-treating the fibre are the same as used in the matrix.
A wide variety of (I) may be used with aspect ratios in the range 2-150 (depending upon the source). Pref. are those derived from **hardwood** and **softwood**, pulps, wood flour, and sawdust. Mixts. may be used with advantage. (II) Pref. includes homopolymers and

copolymers with minor amts. of other monomers, e.g., vinyl acetate or vinylidene chloride. (III) Is pref. 1,6-hexamethylene -diisocyanate, or most pref. polymethylene polyphenylisocyanate (IIIa). Conventional plasticisers, e.g. adipates, phosphates and phthalates are pref. used; also fillers such as mica, talc, CaCO₃, silica, glass fibres, and wollastonite.

USE/ADVANTAGE - The **composite** materials are easily processed by injection or compression moulding into articles having good mechanical properties, which are derived from readily available cheap components. The use of (III) provides good dispersion of the fibres, which is improved further by the pre-treatment claimed.

0/0

FS CPI

FA AB

MC CPI: A04-E02C; A08-R07; A12-A04B; A12-S08C; F03-D; F05-A07

L24 ANSWER 44 OF 49 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1986:610145 HCAPLUS

DN 105:210145

ED Entered STN: 13 Dec 1986

TI Nonwoven fibrous **composites**

IN Grose, Reginald E.; Carlson, Willard E.

PA Congoleum Corp., USA

SO U.S., 14 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM D21H001-10

ICS D21H003-36

NCL 162135000

CC 38-3 (**Plastics** Fabrication and Uses)

Section cross-reference(s): 43

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4609431	A	19860902	US 1984-634724	19840726
	EP 227853	A1	19870708	EP 1985-116524	19851223
	EP 227853	B1	19930526		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	AT 89878	E	19930615	AT 1985-116524	19851223
	CA 1276753	A1	19901127	CA 1986-502913	19860227
PRAI	US 1984-634724		19840726		
	EP 1985-116524		19851223		

AB Nonwoven **composites** sheets, useful as dimensionally stable interliners for surface covering laminates, are manufactured from mixts. of brushed or refined **softwood** pulp and sheets (breaking length ≥ 8 km, d. 0.67) and water-dispersible mineral fibers; mixts. of anionic H₂O-insol. **soft** acrylic resins [glass transition temperature (T_g) -30 to -10°] or anionic H₂O-insol. **hard** acrylic resins (T_g 20-40°); particles of anionic, H₂O-insol., **inorg** fillers; H₂O-soluble, cationic resin flocculants; and other **organic** flocculants to adjust the electrokinetic potential from -10 mV to +10 mV. Thus, refined wood pulp (breaking length 8-10 km, consistency 1%) was mixed with H₂O 529.6, Ca CO₃ 32.0, Rhoplex TR-407 21.7, Amsco-Res 6922 21.7, bleached **softwood** pulp 1500.0, and Rezosol 388-15 20.0 mL. An aqueous dispersion of H₂O 1500, NH₄OH 8.5, Katapol VP532 8.0, and sized 1/8 in. E glass fibers 17.6 gal was mixed with this composition (consistency 2.7%), formed into sheets on a wire screen and drained to give sheets, and left in DOP for 24 h to give sheets with tensile strength 53 lb, elongation

1.8%, stiffness T/2 22, modified Kiel 1500 g, and IGT printability (number 7 ink) 630 ft/min.

ST nonwoven fiber **composite** sheet; pulp cellulose **composite** sheet; acrylic polymer binder; flocculant **composite** sheet; glass fiber **composite** sheet; binder **composite** sheet

IT Acrylic polymers, uses and miscellaneous
RL: MOA (Modifier or additive use); USES (Uses)
(binders, for nonwoven fiber **composite** sheets)

IT Pulp, cellulose
(**composites** with glass fibers and acrylic resin binders, for dimensionally stable sheets)

IT Glass fibers, uses and miscellaneous
RL: TEM (Technical or engineered material use); USES (Uses)
(**composites** with wood pulp and acrylic resins, for dimensionally stable sheets)

IT Antistatic agents
(ethoxylated amines, for glass fiber **composites**)

IT Flocculating agents
(in nonwoven fiber **composite** sheet manufacture)

IT 9081-82-7 105187-53-9
RL: MOA (Modifier or additive use); USES (Uses)
(binders, for nonwoven fiber **composite** sheets)

IT 36787-72-1D, cationic derivs. 105269-96-3
RL: NUU (Other use, unclassified); USES (Uses)
(flocculants, for nonwoven fiber **composite** sheet manufacture)

IT 105188-07-6
RL: NUU (Other use, unclassified); USES (Uses)
(in nonwoven fiber **composite** sheet manufacture)

L24 ANSWER 45 OF 49 JICST-EPlus COPYRIGHT 2004 JST on STN

AN 860058932 JICST-EPlus

TI Development of four-legged vehicle for an intelligent robot.

AU OKAMOTO KENJI; OOKA AKIHIRO; WADA YUTAKA; KIDA YASUSHI; YOSHIDA KENICHI

CS Sumitomo Electric Industries Ltd.

SO Nippon Robotto Gakkaishi (Journal of the Robotics Society of Japan),
(1985) vol. 3, no. 4, pp. 277-284. Journal Code: Y0482A (Fig. 9, Tbl. 1,
Ref. 18)
ISSN: 0289-1824

CY Japan

DT Journal; Article

LA Japanese

STA New

AB The prototype four-legged vehicle for a locomotion system of an intelligent robot was described. For the legs, the horizontally articulated type manipulators with three degrees of freedom were disposed at the corners of a square frame, and whole mechanism was constructed of carbon fiber reinforced plastic (CFRP) for weight reducing purpose. The microprocessor-based hierarchical structure was used for the control system and the **software** was stated in C language. Forward and backward walking was performed using the walking sequence "crawl gait" which is stored as a table memory. The walking speed of 8cm/s could be realised.(author abst.)

CC IC04010B (007.52)

CT intelligent robot; walking machine; technology development; walking; drive; carbon fiber; reinforced plastic; hierarchical control; weight reduction; microprocessor; velocity; degree of freedom; manipulator; computing control; walking robot

BT robot; machinery; orthopedic equipment; medical equipment; utensil; **organic** function helper; research and development; development;

motion; operation and driving; carbon material; **inorganic** material; material; **inorganic** man made fiber; man-made fiber; fiber; high temperature fiber; **composite** material; control; modification; arithmetic processor; **hardware**; degree; computer application; utilization; automatic control; mobile robot

L24 ANSWER 46 OF 49 JAPIO (C) 2004 JPO on STN
AN 2002-338472 JAPIO
TI METHOD FOR PRODUCING ANTIBIOTIC **COMPOSITE** MATERIAL
IN VOGT SEBASTIAN; SCHNABELRAUCH MATTHIAS; KUEHN KLAUS-DIETER
PA HERAEUS KULZER GMBH
PI JP 2002338472 A 20021127 Heisei
AI JP 2002-76627 (JP2002076627 Heisei) 20020319
PRAI DE 2001-10114364 20010322
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002
IC ICM A61K031-65
ICS A61K009-06; A61K009-14; A61K009-16; A61K031-7036; A61K031-7056;
A61K047-02; A61K047-12; A61K047-14; A61K047-20; A61K047-32;
A61K047-36; A61K047-38; A61K047-42; A61K047-44; A61P031-04;
B01J002-22; B01J002-28
AB PROBLEM TO BE SOLVED: To provide a method for producing an antibiotic **composite** material.
SOLUTION: A plastically deformable salt constituted of at least one kind of a cationic component of a base of a protonated antibiotic selected from the group consisting of an aminoglycoside-antibiotic, a lincosamide-antibiotic and a tetracycline-antibiotic, and at least one kind of an anionic component selected from the group consisting of an **organic** sulfate and/or an **organic** sulfonate and/or an aliphatic acid ester is used as a binder for fixing an **inorganic composite** material component and/or an **organic composite** material component, and the salt optionally with water for providing a shape of the **composite** material, added thereto is formed by compression molding and/or strand forming and/or rolling and/or milling and/or pulverizing. The obtained antibiotic **composite** material can be used as an implant for curing topical infection in a **hard** tissue and a **soft** tissue, caused by microorganisms.
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L24 ANSWER 47 OF 49 JAPIO (C) 2004 JPO on STN
AN 2002-224021 JAPIO
TI FLEXIBLE TUBE FOR ENDOSCOPE
IN ABE SUKENAO
PA ASAHI OPTICAL CO LTD
PI JP 2002224021 A 20020813 Heisei
AI JP 2001-26095 (JP2001026095 Heisei) 20010201
PRAI JP 2001-26095 20010201
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002
IC ICM A61B001-00
ICS A61B001-12; F16L011-10; F16L011-12
AB PROBLEM TO BE SOLVED: To provide a flexible tube for an endoscope with excellent chemical resistance.
SOLUTION: An inserting part flexible tube 1 is composed of a spiral tube 21, a net-like tube 22 for covering the outer periphery of the spiral tube 21, skin 3 for covering the outer periphery of the net-like tube 22, and a covering layer 4 for covering the outer periphery of the skin 3. The covering layer 4 is composed mainly of a **composite** of urethane-based elastomer (an **organic** material) and silica (an **inorganic** material). In the **composite**, a

composite domain is formed by joining silica to a **hard** segment of urethane-based elastomer. The **composite** has a structure of separating a **soft** segment of the urethane-based elastomer and the **composite** domain into two layer. The average thickness of the covering layer 4 is desirably 1 to 100 μm . In the skin 3, a part on the side for contacting with at least the covering layer 4 is desirably composed of a material including urethane-based elastomer.

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L24 ANSWER 48 OF 49 JAPIO (C) 2004 JPO on STN

AN 2002-224018 JAPIO

TI FLEXIBLE TUBE FOR ENDOSCOPE

IN ABE SUKENAO

PA ASAHI OPTICAL CO LTD

PI JP 2002224018 A 20020813 Heisei

AI JP 2001-28515 (JP2001028515 Heisei) 20010205

PRAI JP 2001-28515 20010205

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002

IC ICM A61B001-00

ICS F16L011-04; G02B023-24

AB PROBLEM TO BE SOLVED: To provide a flexible tube for an endoscope excellent in resiliency and durability.

SOLUTION: The inserting part flexible tube 1 has a spiral tube 21 formed by winding a belt-like material in a spiral shape, a net-like tube 22 formed by braiding fine wires 23, and the flexible outer cover 3. A covering layer 231 is formed at least in one of the fine wires 23. The covering layer 231 is mainly composed of a complex of urethane-based elastomer (an **organic** material) and silica (an **inorganic** material). In the complex, a **composite** domain is formed by joining the silica to a **hard** segment of the urethane-based elastomer. The complex has a structure of separating a **soft** segment of the urethane-based elastomer and the **composite** domain into two layers. The average thickness of the covering layer 231 is 1 to 100 μm . In the outer cover 3, a part on the side for contacting with at least the covering layer 231 is composed of a material including urethane-based elastomer.

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L24 ANSWER 49 OF 49 JAPIO (C) 2004 JPO on STN

AN 2001-323070 JAPIO

TI SPHERICAL **COMPOSITE** PARTICLE AND COSMETIC BLENDED WITH THE SAME

IN MIYAZAKI TAKUMI; TANAKA HIROKAZU

PA CATALYSTS & CHEM IND CO LTD

PI JP 2001323070 A 20011120 Heisei

AI JP 2001-54967 (JP2001054967 Heisei) 20010228

PRAI JP 2000-64117 20000308

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2001

IC ICM C08J003-12

ICS A61K007-02; C08K007-16; C08L101-00

AB PROBLEM TO BE SOLVED: To obtain spherical **composite** particles capable of bringing a cosmetic to be adjusted to have a desired

hardness or **softness** and easy slipping depending on a feeling required to the cosmetic by blending the aforesaid particles.

SOLUTION: The spherical **composite** particles are obtained by spray drying a dispersion in which **inorganic** fine particles and resin particles having predetermined particle sizes are dispersed in water and/or an **organic** solvent. The obtained spherical particles can be further processed by heating at a temperature equal to or higher than the glass transition temperature of the resin. Resin fine particles

comprising a resin having rubber elasticity are used to enhance flexibility. As **inorganic** particles, particles of oxides such as silica, alumina, titanium oxide, zirconia, zinc oxide, iron oxide, cerium oxide, magnesium oxide and the like and particles of complex oxides thereof are cited.

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